ompuExpo:
Global OEM Showcase
VIEW STARTS ON PAGE 74

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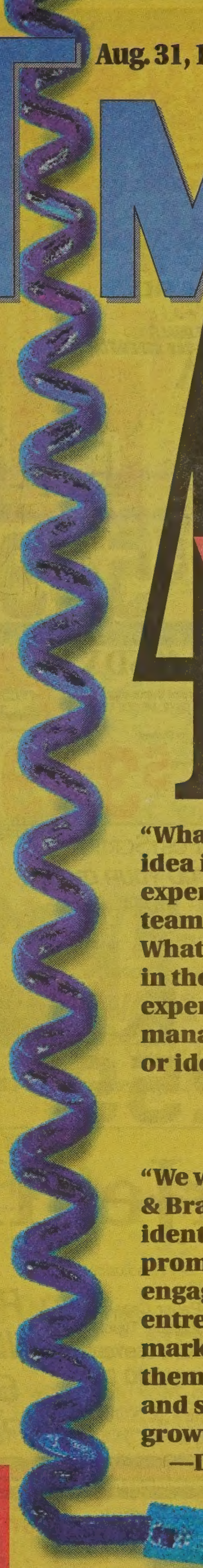

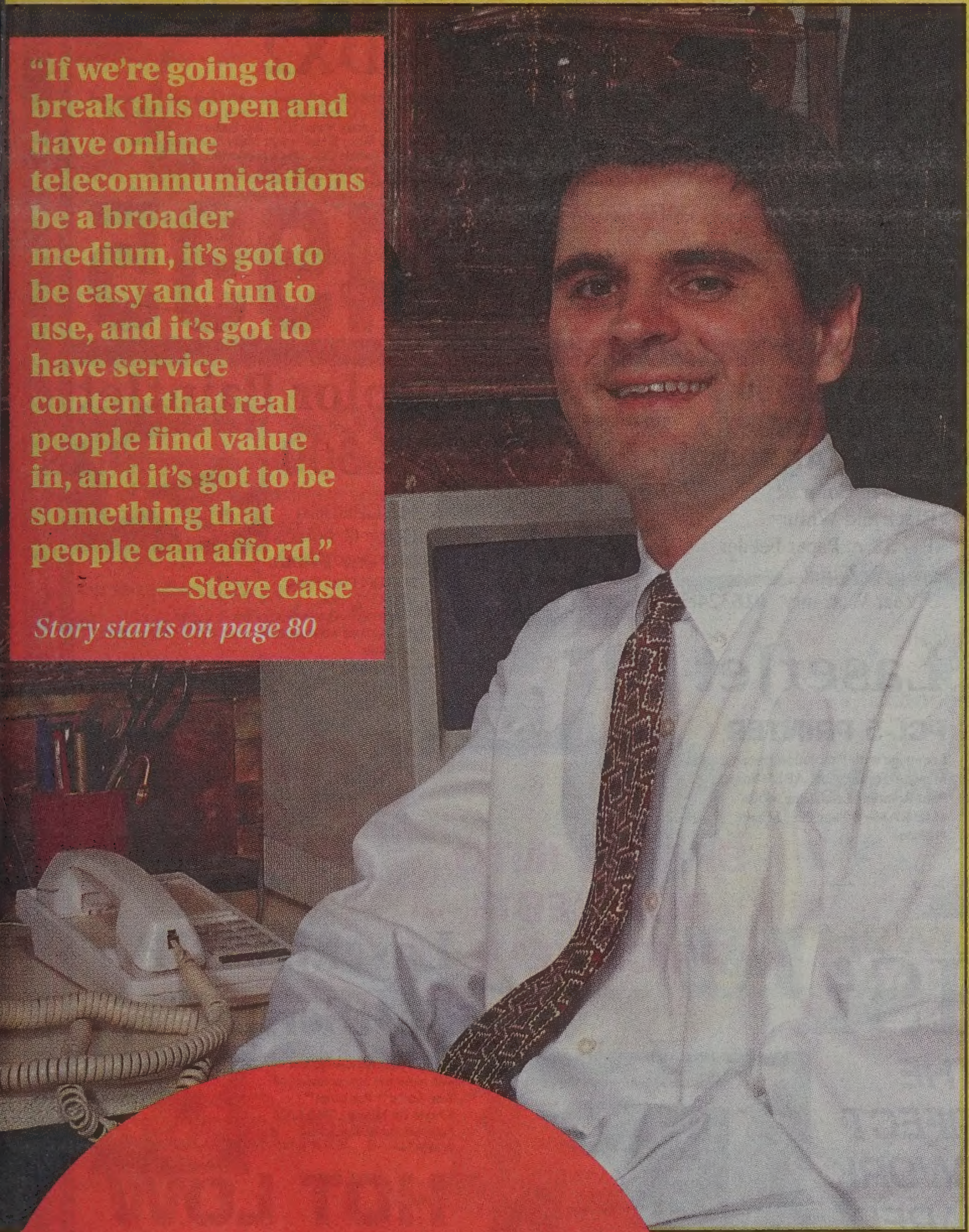

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Story starts on page 80

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SPECIAL SECTION
STARTS ON PAGE 118

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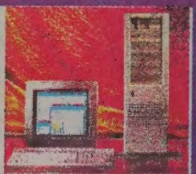

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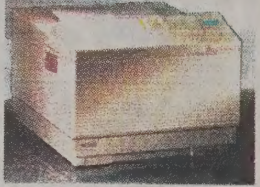

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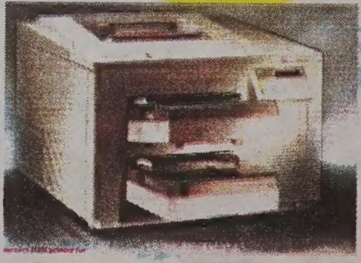

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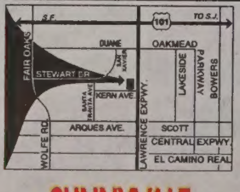
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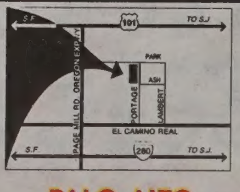
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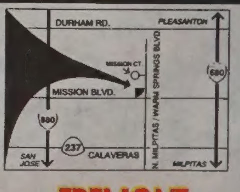
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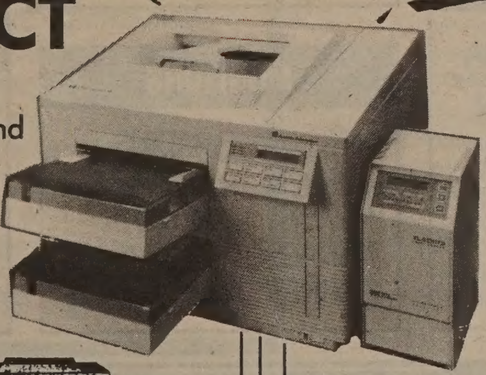

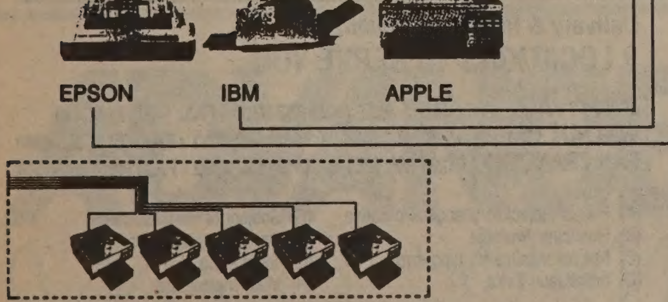

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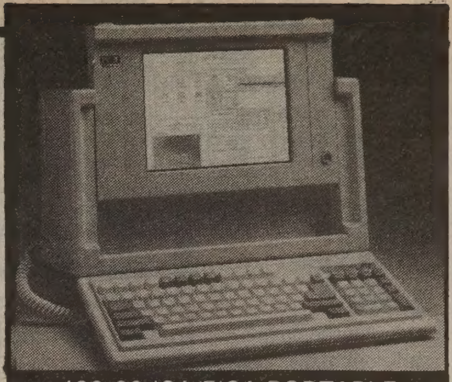

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A NOTE FROM THE EDITORS

As we come to our yearly look at the state of the venture capital industry, starting on page 118, we discover a state of great uncertainty and great opportunity. With investment opportunities ranging from digital content to wireless networking, the rewards and pitfalls currently awaiting entrepreneurs and investors have been compared to the early days of the personal computer industry. As William Davidow notes in "From Virtual Reality to the Virtual Corporation," the products we create and the way we produce them will change enormously in the next few decades.

Our cover story profiles America Online, a classic success story for its investors, who saw both the opportunity in mass-market online services and the importance of strategic alliances to their ultimate success. The experiences of AOL as it evolved from idea to growing public company offer useful insights to today's startups—even if they're taking on a somewhat different business challenge.

—ME

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GETTING AMERICA Online

An Interview With AOL President/CEO Steve Case
By Mary Eisenhart 80
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The only independent company among the nation's leading online services, America Online is achieving rapid growth by offering a unique combination of ease of use and low cost. President Steve Case talks about how AOL got started and where it's going, with strategic partners ranging from Microsoft to the *Chicago Tribune.*

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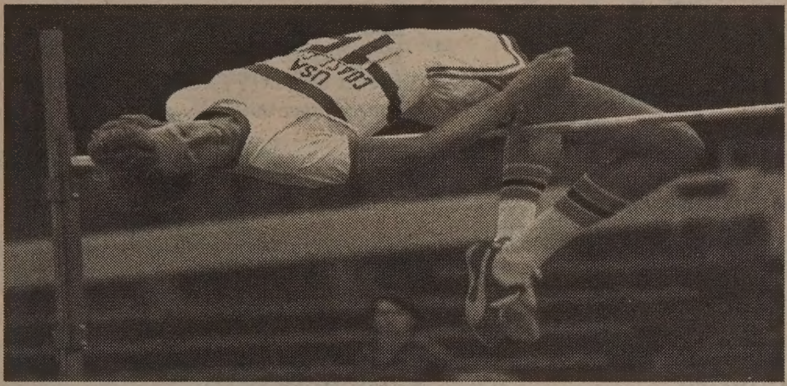

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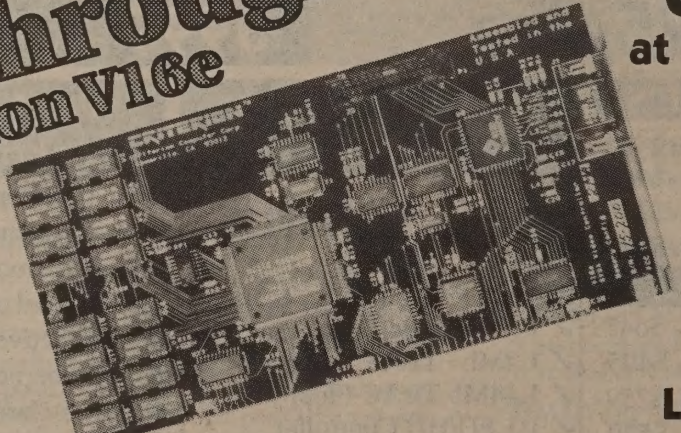

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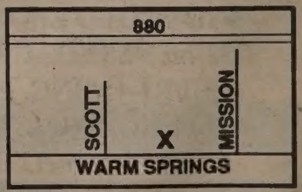

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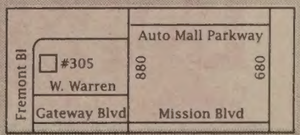

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CONTRIBUTORS

Starting with our feature on SGI's Ed McCracken a couple of months ago, our cover and cover story designs have been the work of Lee Ann Nelson. After ten years with us at BAM Publications, where she achieved great distinction as first Art Director, then Creative Director, Lee Ann recently left to start her own company, Nelson Design (510/837-8531). Since we've been getting many compliments on her work lately, we thought this would be an opportune time to give thanks and credit where they're due!

We'd also like to welcome our newest contributor, Douglas Nakakihara of scenic Simi Valley. Longtime (and pathologically observant) readers may recall Doug as a frequent correspondent who could be counted on to defend the Amiga against its ill-advised detractors. When former Amiga columnist Matthew Leeds recently published his farewell column, we immediately heard from Doug (a CPA for Sunkist by day, an Amiga zealot the rest of the time) and his intrepid brother James, who works in marketing for Commodore, reminding us that there was *plenty* of Amiga news out there… So, with this month's entry on Amiga-based Novell networking, Doug takes up his mission of keeping *MicroTimes* relevant to the Amiga community.

—*ME*

Jennifer Robin Cherniss is a free-lance writer based in Berkeley.

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Contributing editor **Wayne Yacco** writes and consults in Burbank and is trying out the single-name approach to life.

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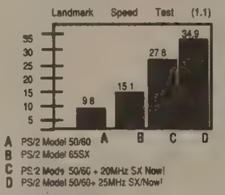

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Harold Cosel
Project Learning, Los Angeles

DESQVIEW/X HIDDEN COSTS?

I was extremely disappointed in the "review" of DESQview/X by Lenny Bailes [Issue #98N/S]. The issue cover advertised that DESQview/X allows DOS and UNIX applications to appear side-by-side on a DOS- or UNIX-based machine. This is true.

However, Mr. Bailes only tested a DOS to DOS connection over LANtastic, thereby leaving a major portion of the program untested. Mr. Bailes stated that DESQview/X allows convenient file sharing over Novell (IPX), NETBIOS, and TCP/IP networks for a third the cost of simple file link and transfer utilities between UNIX and DOS costing upward of $700. His mistake was not testing this product on a TCP/IP network, or he would have learned that not only are DESQview/X and the TCP/IP Manager from Quarterdeck required, but also a third-party DOS TCP/IP kernel, which costs more than either one!

Quarterdeck fails to mention the fact that additional TCP/IP software is required to use DESQview/X on a TCP/IP network in any advertisement, or on the packaging of DESQview/X and the TCP/IP Manager. I learned this the hard way by purchasing both products. The only reference to the required TCP/IP software is in Appendix B of the TCP/IP manual, where a single paragraph specifies the two compatible (and costly) DOS TCP/IP kernels. The Quarterdeck TCP/IP Manager does nothing other than provide an interface to a third-party DOS TCP/IP kernel.

Marc A. Tillinghast
Storm Integration, Inc., San Jose

Lenny Bailes responds: When queried about this, Quarterdeck's marketing department said that its assumption was that a user who purchases DESQview/X for a UNIX-DOS connection would already have a network license agreement with either Novell or FTP. (The package does clearly indicate that you must have a previously installed network to use DESQview/X remotely.)

I asked a representative from FTP about this, and he confirmed that any site already running FTP's PC-TCP/IP package would have the included kernel to run DVX. (A new, single-workstation copy of PC-TCP/IP can be obtained for $200).

Quarterdeck has addressed the issue with Novell networks recently by signing a reciprocal agreement with Novell. In the future, DESQview/X will ship with a coupon that entitles the user to a free copy of Novell's TCP/IP kernel for their LAN Workplace software.

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INDUSTRY INSIGHT

Chips And Lawsuits

BY PAUL HOFFMAN

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

CYRIX WINS RIGHT TO MAKE 387 MATH COPROCESSOR

In a stunning defeat for Intel, Cyrix won a costly court battle that gives it the right to continue selling Cyrix's own version of the 80387 math coprocessor chip based on a cross-licensing agreement between Intel and SGS-Thompson, the actual manufacturer.

US District Court Judge Paul Brown said that since SGS-Thompson has a broad cross-license agreement to make Intel-compatible chips, Cyrix cannot be sued for designing and selling those chips as long as SGS-Thompson manufactures them. Intel promised to appeal immediately.

The case could have profound effects for Intel in three broad areas:

•Although there is currently not much of a market for 387 math coprocessors, that may be because they are so expensive. Many 386 users who need faster systems may opt to buy a 387 instead of upgrading their motherboard to a 486 if the price of the 387 dropped significantly. Cyrix is in a much better position to sell cheap 387s than Intel is, because Intel knows that those sales erode sales for its more profitable 486 CPUs.

•Intel has many cross-licensing agreements with chip "foundries" like SGS-Thompson. For example, Texas Instruments (TI) has such an agreement, and in fact is a foundry for Cyrix's 486SX clone. This ruling may give some of these foundries an impetus to start making other Intel-compatible chips, such as clones of the 486 or other valuable CPUs.

Intel has already been fighting off such rulings with other of its competitors like AMD and Chips and Technologies. Cyrix has already announced that it will have a full-blown 486 clone that will compete head-to-head with Intel's by the end of this year. Now that it knows (at least until the appeal is heard) that it can use the foundry defense successfully, Cyrix will be able to price the chip lower, eating into Intel's profits.

•Given the bullying (some would say monopolistic) posture that Intel has taken around competitors, Intel could be hit with major damages in Cyrix's countersuit. Clearly, Intel's posturing has reduced Cyrix's potential market, but it is unclear about how much Cyrix can convince a jury to give them. An award in the range of $50 million would not hurt Intel much, but it would give tiny Cyrix a huge boost.

> **Although there is currently not much of a market for 387 math coprocessors, that may be because they are so expensive.**

Intel's appeal may take a long time, and it could, of course, get the decision reversed. Until then, however, the damage to Intel's bottom line could be significant. The more foundries with cross-licensing agreements decide to test the waters, the harder it will be for Intel to bully PC manufacturers into using only Intel chips. Small companies like Cyrix will not hurt Intel much in the coming months, but by the end of this year, Intel's CPU market may be vulnerable on all levels.

INTEL DELAYS P5

You won't see the P5/586 CPU this year, and that could be bad news for some users who were pinning their hopes on that processor. Intel announced last month that it was delaying the full release from late this year into the first quarter of 1993. Industry sources say that the two main reasons for the delay will in fact be to the advantage of most users. Intel wanted more time to test the chip in real-world environments to avoid creeping bugs such as those found in previous CPUs, and to be sure that it had enough chips available at the rollout so that all manufacturers would have a good supply immediately.

If you were hoping to see PC prices drop again later this year when the P5 (Intel's official designation for the new CPU) was released, you will have to wait. Many manufacturers are starting to hurt from the last round of cuts that didn't increase PC sales by much but certainly cut profits, and they are not about to cut prices again until they have to.

When the P5 is released, Intel will probably price it above the current price for the fastest 486, but will probably also lower prices on the entire 486/486SX line. The first systems based on the P5 will probably cost almost twice as much as the fastest 486, although they may not result in twice as much computing power. A round of 486 CPU price cuts would certainly cause a round of PC price cuts, making the gap between 486 and 586 systems even larger.

Few users will "need" a P5, even with the delayed schedule. The most common mar-

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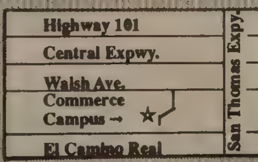

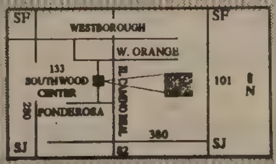

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kets for the P5 will be computer-aided design (CAD) users and people using drawing and photo touch-up programs, as well as those needing faster network fileservers. Intel is just starting to officially release details of how the P5 will differ from the top-of-the-line 486s, and the market will probably react slowly when the chips first come out. Many businesses are still in the process of moving from the 386 to the 486, and they aren't about to switch again soon.

The cost of the P5 will probably be prohibitive, even in its target markets. It is likely to cost PC makers $1000 apiece, compared to about $400 for the top-of-the-line 486. One reason the P5 will cost so much is that Intel is using a totally new chip-fabrication method that will squeeze almost three times as many transistors into the same chip area. The new method is also the reason Intel wants more time to produce the chip: a single new manufacturing glitch could put the project off by a month.

> **Lotus won the first round in its copyright infringement suit against Borland by convincing US District Court Judge Robert Keeton that Borland clearly copied Lotus' screen display and command structure.**

On the technical side, you can expect the first P5 to run at either 66 or 75MHz, and that the typical user will see about twice the raw speed as a 486 running at the same clock rate. Where the P5 will really scream is in floating-point math: it will run about five times as fast as a 486 in math-intensive programs. This number can be misleading, in that you will only get that kind of increase if the program is specially compiled to take advantage of the P5 by putting all the math calculations near each other. This can easily be done for custom applications if compiler manufacturers like Microsoft and Borland optimize for the P5, but it is unlikely that commercial applications will see that kind of speed increase unless they release P5-specific versions.

BORLAND LOSES SUMMARY JUDGMENT IN LOTUS SUIT

As many people expected, Lotus won the first round in its copyright infringement suit against Borland by convincing US District Court Judge Robert Keeton that Borland clearly copied Lotus' screen display and command structure. The next step is the full trial before the jury, where Borland can hope for either a lenient jury or a victory on appeal. Lotus' previous copyright suits were before the same judge, and he ruled in Lotus' favor almost every time, thus making this decision

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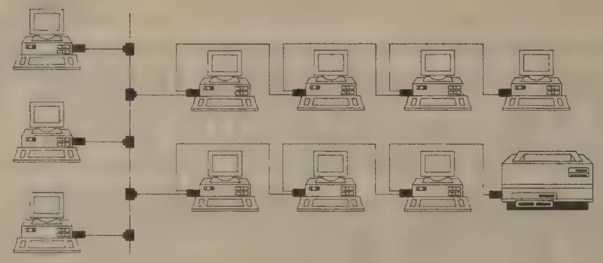

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The case revolves around the user interface of Borland's Quattro Pro. Borland shipped earlier versions of Quattro Pro with a default interface that almost exactly matched that of Lotus 1-2-3. Borland made a big deal about the fact that you could change the interface (both the placement of the menus and the keystrokes you use to initiate an action), but it was well known that only a tiny fraction of users made this change. Lotus sued, saying that the "look and feel" of its program were being copied.

Judge Keeton ruled in favor of Lotus in many earlier cases, such as the Paperback Software and Mosaic suits, and he used the same reasoning in this preliminary judgment. It is likely that Borland will appeal any eventual ruling because other judges have disagreed with Judge Keeton about the absolute value of a look and feel, as well as how much damage from such an infringement should be assessed against the copier.

MICROSOFT RELEASES WINDOWS NT TO DEVELOPERS

In one of the biggest rollouts of a future operating system, Microsoft attracted almost five thousand people to its Win32 Developer's Conference and showered them with enough software and documentation to ensure that there will be lots of NT programs when the operating system ships next year. Microsoft won the hearts and minds of many developers by proving how well NT works today and showing how the operating system will help them for many years. Given how few companies have announced OS/2-specific programs, Microsoft is probably correct in feeling smug about the future of NT.

> **Given how few companies have announced OS/2-specific programs, Microsoft is probably correct in feeling smug about the future of NT.**

From a software developer's standpoint, NT's biggest features will be its portability to RISC processors, its outstanding multitasking, and its ability to run many current MS-DOS and Windows 3.1 programs. Its weakest points from a user's standpoint are its large memory and disk requirements, its inability to run popular utilities like the Norton Utilities and Fastback, and its inability to handle device drivers for hardware like faxes and scanners. These drawbacks are significant, but software and hardware manufacturers may ameliorate them by having replacements ready by the time Microsoft ships NT next year.

Microsoft's developer kit won high praises from people who had suffered through developing Windows 3.0 programs. It allows most companies with existing Windows software to convert to NT with little problem. Basically, if a program doesn't do anything fancy with tasks, doesn't do any direct hardware manipulation, and follows Microsoft's somewhat cryptic memory standards, the transition to NT will be fairly direct. If you developed your Windows program for the 386 Enhanced mode, you will have a harder time, but it will still be easier than the DOS-to-Windows translation.

The developers having the worst time developing for NT will be those who have to use hardware device drivers, such as fax boards, scanners, and communication cards (such as those used to emulate 3270 terminals). Microsoft has already warned that converting the DOS device drivers to NT will be difficult, and it will not be clear until NT is released which device drivers work.

This, of course, is the same problem the same companies still face with developing for OS/2, so Microsoft isn't much of a villain for it. However, users who expect their DOS or Windows programs that require hardware drivers to work under NT will be sorely disappointed. The biggest market loss will be for 3270 emulators, but many developers of those products insist that they will have NT versions out within months after NT is released.

Humorously, Microsoft has put itself into the ugly position that Apple was in when it released System 7 for the Macintosh. Microsoft wrote the biggest-selling programs for the Macintosh, and those programs contained some sloppy programming that Apple had to build defenses against in System 7. Now Microsoft has to build defenses against some sloppy MS-DOS and Windows programs into NT. Hopefully Microsoft will be more successful than Apple was at including the defensive code without affecting properly written programs. ■

Technology News From Japan

(Excerpted from the weekly news digest of Japan Marketing Group, 400 Groveland Ave., Suite 312, Minneapolis, MN 55403, 612/871-7889. JMG covers products and events in the Japanese computer industry.)

➤**Kawasaki Systems Development**, a subsidiary of Kawasaki Steel, has developed a new software package, "F6680E for Mac," which allows Macintosh computers to retain their functionality while serving as terminals on systems based on Fujitsu's mainframe and supercomputer technology. Kawasaki expects to begin shipments in August, and projects first-year sales of one thousand to fifteen hundred packages.

➤**Sun Technology Enterprise**, a subsidiary of Sun Microsystems, will soon introduce its Sun application software to the Japanese market. It has begun developing software to link Sun workstations with IBM PCs—"PC-NFS" connects PCs to workstations, and "Sun-PC" will run Windows applications on Suns.

➤**Autodesk (Japan)** has announced the localized version of HyperChem 2, marking the company's entry into the molecular design market. The software runs on Windows-based PCs and Silicon Graphics workstations, and, at a price of 1 million yen, is considerably less expensive than competing products. The company anticipates sales of 1 billion yen ($8 million) in 1994.

➤**Microsoft (Japan)** has set up an Asia group organization to promote sales of Windows to OEM users, including PC manufacturers in Japan, Korea, and Taiwan. Microsoft hopes the new organization will be able to double Windows shipments in the area to five hundred thousand copies by June 1993.

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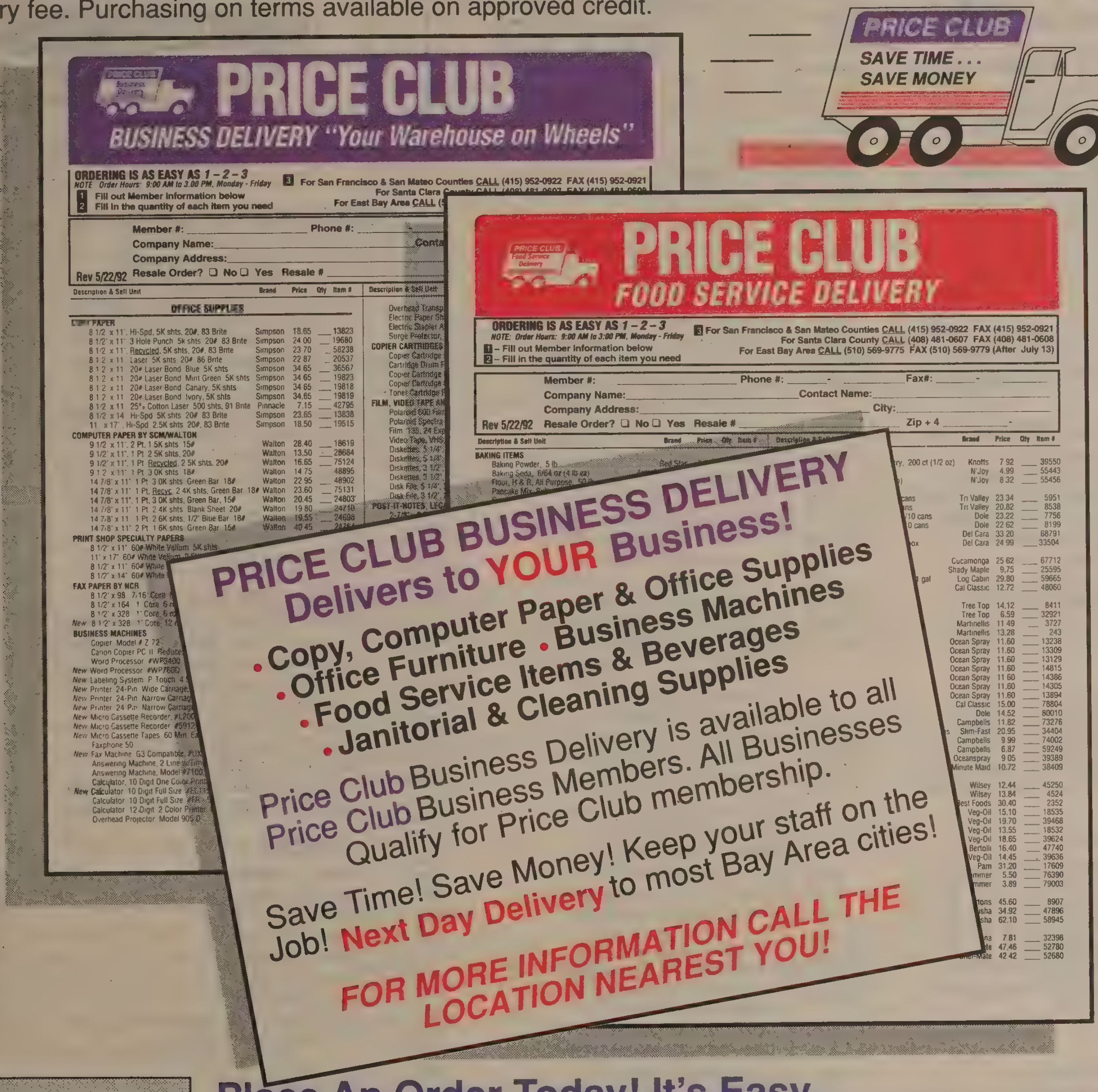
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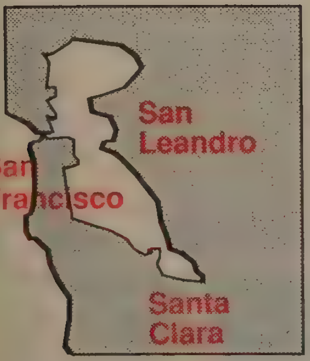

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Toshiba T3100SX Laptop
NEC SilentWriter 2 Model 990
IBM Personal Page Printer II
NEC P5300 Printer
IBM 8513 Color Monitor

COMPAQ

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Contura 3/20, Model 40/W	CALL
Contura 3/20 Model 84	CALL
Contura 3/25 Model 60	CALL
Contura 3/25 Model 60W	CALL
Contura 3/25 Model 120	CALL
LTE Lite/20, 2MB, 40MB HD	$2,207
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LTE Lite/25C, Color, 4MB, 120MB HD	CALL

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Prolinea 3/25ZS Model 84/W	CALL
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Prolinea 3/25S Model 84	CALL
Prolinea 3/25S Model 120	CALL
Prolinea 3/25S Model 84/W	CALL
Prolinea 3/25S Model 120/W	CALL
Prolinea 4/33 Model 1	CALL
Prolinea 4/33 Model 84	CALL
Prolinea 4/33 Model 120	CALL
Prolinea 4/33 Model 120/W	CALL
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DeskPro 3/25I, Model 84	CALL
DeskPro 3/25I, Model 84 /W	CALL
DeskPro 3/25I, Model 120	CALL
DeskPro 3/33I, Model 1	CALL
DeskPro 3/33I, Model 84	CALL
DeskPro 3/33I, Model 84/W	CALL
DeskPro 3/33I, Model 120	CALL
DeskPro 4/25is Model 1	CALL
DeskPro 4/25is Model 84	CALL
DeskPro 4/25is Model 84/W	CALL
DeskPro 4/25is Model 120	CALL
DeskPro 4/33I Model 1	CALL
DeskPro 4/33I Model 120	CALL
DeskPro 4/33I Model 120/W	CALL
DeskPro 4/33I Model 210	CALL
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DeskPro 486/33M, 120MB	$2,647
DeskPro 486/33M, 340MB	$3,337

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Toshiba T3300SL, 120MB HD	$2,742
T4400SX, 486SX/25MHZ, LCD	$2,914
T4400SX, 486SX/25, Gas Plasma	$3,171

HEWLETT-PACKARD

H-P DeskJet 500	CALL
DeskJet 500C, Color Printer, 300DPI	$599
H-P LaserJet IIP Plus	$779
H-P LaserJet IIP,Postscript,1.5MB	$1,220
H-P LaserJet IIIP, 1MB RAM	CALL
H-P LaserJet IIIP, Postscript Level II	$1,607
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H-P LaserJet III, Postscript Level II	$2,186
H-P LaserJet IIID	$2,315

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Personal Printer Series II model 2380	$322
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Personal Printer Series II model 2390	$322
Personal Printer Series II model 2391	$452
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LaserPrinter 4029 Model 10L	$2,108
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Epson LQ-870	$460
Epson LQ-860	$583
Epson LQ-1070	$393
Epson LQ-1170	$631
Epson FX-850	$306
Epson FX-1050	$407
Epson LQ-2550	$930
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OKIDATA

Okidata ML 320	$304
Okidata ML 321	$426
Okidata ML 380	$213
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Okidata ML 391 Plus	$578
OkiLaser 400	$598
OkiLaser 810	$1,056
OkiLaser 830, 8 PPM, Postsript, 2MB	$1,254
OkiLaser 840, 8 PPM, Postscript	$1,585

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Prices Subject to Change without Notice

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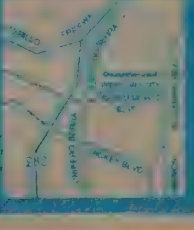

Lower Interest Rates Send Stock Prices Sharply Higher

A powerful and sudden rally swept the S&P 500 and NYSE stock indices to record highs and pushed the Dow Industrials tantalizingly close to its all-time record of 3413.21 during the last week of July. The reason: lower interest rates prompted investors to look for higher-yielding equities, and the net effect was a bull run that caught many investors by surprise.

Technology issues got caught up in the euphoria as well last month, triggering a 5.81% rally in the Microtimes Stock Index to a close of 3367.19.

Digital Equipment was in the news again last month as the company reported a fourth-quarter loss of $1.85 billion, primarily the result of a $1.5 billion restructuring charge. The loss amounted to $14.76 a share, compared with a loss in the year-ago quarter of $7.08 a share. The loss incurred a year ago also included a $1.5 billion restructuring charge. Stocks of the nation's second-largest computer maker, however, advanced $5.50 a share for the period, or 16.3%, to close the session at $39.25.

Compaq Computer made a spirited stride as its stock price rose $5 a share, or 20.41%, to close the term at $29.50. The company surprised investors with positive second-quarter earnings of 35 cents a share, up from 23 cents a share earned a year earlier. Separately, Brown Brothers raised its investment rating of the company to "buy" from "neutral" last month.

IBM reported positive second-quarter earnings of $1.22 a share, up from a mere 22 cents a share a year earlier. In spite of the elevated earnings report, however, investors unloaded the stock after the computer giant failed to meet analyst's predictions of earnings of between $1.30 to $1.35 a share. The news sent IBM's stock price crashing midway through the month, yet the company recently rallied $2 a share before closing the month of July at $94.75. The company said it is willing to cut more costs to address its profit margin problems. Last week, the company disclosed it will terminate eleven thousand to twelve thousand jobs at IBM in 1992. ■

EXCH	COMPANY	TICKER SYMBOL	CLOSING PRICE 07/02/92	CLOSING PRICE 07/31/92	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH	P/E RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE										
OTC	Adobe (L)	ADBE	44.75	38.00	–6.75	–15.08	16	0.32	0.84	68.50	35.75
OTC	Aldus	ALDC	13.00	14.63	1.63	12.50	16	0.00	0.00	45.00	11.50
OTC	Autodesk	ACAD	37.13	42.50	5.38	14.48	21	0.48	1.13	57.25	23.25
OTC	Borland (L)	BORL	41.00	47.75	6.75	16.46	–	0.00	0.00	86.75	35.00
OTC	Informix (H)	IFMX	29.00	37.75	8.75	30.17	17	0.00	0.00	39.00	5.50
OTC	Lotus (L)	LOTS	18.25	18.25	0.00	0.00	13	0.00	0.00	40.75	15.50
OTC	Microsoft	MSFT	69.88	72.75	2.88	4.11	30	0.00	0.00	88.84	47.84
OTC	Novell	NOVL	53.75	55.00	1.25	2.33	40	0.00	0.00	65.00	28.50
OTC	Oracle	ORCL	16.88	18.63	1.75	10.37	42	0.00	0.00	21.13	8.88
OTC	Software Publishing (L)	SPCO	8.88	9.50	0.63	7.04	–	0.00	0.00	26.25	7.50
OTC	Symantec (L)	SYMC	37.50	21.00	–16.50	–44.00	23	0.00	0.00	51.00	18.00
	HARDWARE										
OTC	Apple	AAPL	46.25	46.75	0.50	1.08	11	0.48	1.03	70.00	42.75
OTC	AST Research	ASTA	13.88	13.88	0.00	0.00	6	0.00	0.00	32.25	12.00
NYS	Commodore (L)	CBU	10.13	9.63	–0.50	–4.94	6	0.00	0.00	19.25	9.00
NYS	Compaq	CPQ	24.50	29.50	5.00	20.41	36	0.00	0.00	37.50	22.13
NYS	Digital Equipment	DEC	33.75	39.25	5.50	16.30	–	0.00	0.00	69.13	33.25
OTC	Dell	DELL	17.75	23.00	5.25	29.58	14	0.00	0.00	29.00	13.91
NYS	Hewlett-Packard	HWP	66.88	73.50	6.63	9.91	20	0.80	1.09	85.00	44.63
NYS	IBM	IBM	96.88	94.75	–2.13	–2.19	12	4.84	5.11	106.38	81.63
NYS	Silicon Graphics	SGI	17.50	22.25	4.75	27.14	–	0.00	0.00	29.75	14.13
OTC	Sun Microsystems	SUNW	26.13	26.75	0.63	2.39	14	0.00	0.00	35.88	20.75
NYS	Xerox	XRX	69.75	74.75	5.00	7.17	18	3.00	4.01	82.25	52.63
NYS	Tandy (L)	TAN	23.25	24.75	1.50	6.45	11	0.60	2.42	31.25	22.50
	CPU'S										
NYS	Advanced Micro Devices (L)	AMD	7.63	8.88	1.25	16.39	3	0.00	0.00	21.50	7.38
OTC	Intel	INTC	55.88	59.75	3.88	6.94	16	0.00	0.00	68.75	38.50
NYS	LSI Logic (L)	LSI	6.75	5.88	–0.88	–12.96	–	0.00	0.00	9.88	5.50
NYS	Motorola (H)	MOT	76.63	85.63	9.00	11.75	23	0.76	0.89	85.63	54.00
	COMMUNICATIONS										
NYS	AT&T (H)	T	43.88	43.88	0.00	0.00	93	1.32	3.01	44.88	32.88
NYS	BellSouth Corp. (H)	BLS	49.75	52.75	3.00	6.03	15	2.76	5.23	53.25	43.38
OTC	MCI	MCIC	32.25	33.75	1.50	4.65	16	0.10	0.30	36.13	25.25
NYS	Northern Telecom (L)	NT	37.00	34.88	–2.13	–5.74	18	0.36	1.03	49.25	33.75
NYS	Pacific Telesis	PAC	40.75	43.63	2.88	7.06	17	2.16	4.95	45.00	36.88

KEY: NYS = NEW YORK ASE = AMERICAN OTC = OVER THE COUNTER
(H) = NEW HIGH REACHED IN PERIOD (L) = NEW LOW REACHED IN PERIOD

MARKET DIARY:

ADVANCES	23
DECLINES	6
UNCHANGED	3
NEW HIGHS	4
NEW LOWS	10

MOST ACTIVE ISSUES:

LARGEST DOLLAR GAINER	Motorola	$	9.00
SMALLEST DOLLAR LOSER	Symantec	$	–16.50
LARGEST PERCENTAGE GAINER	Informix	30.17	%
SMALLEST PERCENTAGE LOSER	Symantec	–44.00	%

	CLOSE 07/02/92	CLOSE 07/31/92	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH
MICROTIMES STOCK INDEX	3182.43	3367.19	184.76	5.81
DOW JONES INDUSTRIAL AVERAGE	3330.29	3393.78	63.49	1.91
STANDARD & POOR'S 500 STOCK INDE	411.77	424.21	12.44	3.02
N.Y.S.E. COMPOSITE	226.41	233.15	6.74	2.98
NASDAQ COMPOSITE	563.35	580.83	17.48	3.10

CLOSING QUOTES FOR GRAPH:

DATE	MICRO TIMES	DOW JONES
01/20/92	3961.41	3254.03
02/14/92	3984.10	3245.97
03/13/92	3888.19	3235.91
04/10/92	3566.89	3255.37
05/08/92	3642.36	3369.41
06/05/92	3562.74	3398.69
07/02/92	3182.43	3330.29
07/31/92	3367.19	3393.78

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Personal Computer-Assisted Political Action

Access Vs. Privacy Issues

BY JIM WARREN

REALIZABLE FANTASIES

Personal computers are today's "Great Equalizers." Personal computers are irresistible weapons—when "loaded" with information—with which "armed" citizens can defend and enhance (and revive) the democratic processes of a free people.

Computers are power amplifiers. It's said that "Knowledge is power." But knowledge depends on information; information depends on structuring data and its relationships—and that's what computers do eminently well.

Thus, computers—with access to relevant information in digital form—empower their users. In the past, cost limited this power only to large corporations and government. Now, personal computers—plus low-cost digital information—are beginning to rectify that inequity.

Personal computer power is limited only by access to its ammunition—information. Access to political and governmental information empowers citizens to, once again, control their government.

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Warren founded InfoWorld, *the DataCast proposal for paperless electronic newspapers, Wireless Digital Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS's* Computer Chronicles, *founding editor of* Dr. Dobb's Journal, *and has chaired various trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics & statistics, and once chaired the College of Notre Dame-Belmont Mathematics Dept.*

He organized and chaired the landmark First Conference on Computers, Freedom & Privacy (1991), sponsored by a dozen nonprofit civic, professional, and industry organizations; and received one of the first Electronic Frontier Foundation Pioneer Awards (1992). He is a member of the board of directors of Autodesk, Inc.

CONTACTING DECISION-MAKERS

Lists of federal, state, county, city, and district decision-makers are increasingly available in machine-readable form—on diskettes, CD-ROMs, and from computer nets and BBSes (computer bulletin board systems); they're available from public agencies, nonprofit groups, and for-profit information duplicators. Lists may only provide decision-makers' names, addresses, political parties, and perhaps phone numbers. Or, providers may have "added value" by including committee memberships, group affiliations, areas of interest, publicly stated positions, etc.

This information was always public, but used to be much less accessible—functionally limiting its use only to lobbyists and the most diligent citizens. Personal computers and low-cost info-access are dissolving that barrier against "mere" citizens effectively participating in the political process.

Convenient computerized access helps identify supporters (and opponents), organize constituencies, and coordinate interaction, and permits timely, targeted communications—by computer-assisted mail, fax, and phone, and even computer-guided personal visits to identified key decision-makers.

Without easy public access to this information, part-time political action is random and ineffective; productive advocacy is functionally limited to full-time activists; and political power remains in the hands of professional lobbyists.

DECISION-MAKERS' PRIVACY

Some folks are proposing that all official information about the nation's most powerful decision-makers—even names and addresses—should be private (i.e. known only to special-interest groups that ferret out the information from other records). Although the decision-makers voluntarily sought their power to control our government and make its most important decisions, some want their privacy—no citizens' visits, phone calls, or even "junk" mail from community members concerned about their impending votes.

The nation's most powerful decision-makers are its registered voters.

VOTER REG RECORDS: POWERFUL PUBLIC DATA

Voter registration records contain at least name, legal address, and party affiliation (if any)—needed to identify legal voters, the jurisdictions in which they are entitled to vote, and parties in which they are entitled to participate. Registrations are public records—*those seeking to exercise political power are identifiable.*

> **In the past, computerized voter registration records were available only on 9-track magtape. Use was functionally limited to professional campaign managers—working for anyone who could afford them. Now, low-cost reg records are becoming available for micros—on diskettes or CD-ROMs.**

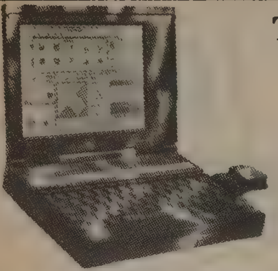
Reg records can be examined. Anyone can examine the registrations—a powerful deterrent to voter fraud, such as multiple or fictitious registrants ("Vote early; vote often!"), graveyard voters (representing the spirits of the long-departed), etc. Some have suggested that only incumbent politicians should have access to voter records.

Reg records can be copied. As with other public records, anyone can obtain a copy of reg records—by hand, paper copy, or in computer form. *Use is legally limited only to election-related matters.*

WHO'S GOT THE POWER?

In the past, computerized records were available only on 9-track magtape. To process them, you needed a megamonster mainframe in the garage. Thus, use was functionally limited to professional campaign managers—working for anyone who could afford them. Successful candidates commonly rewarded their campaign managers

Texas Instruments



TravelMate™4000
Notebook Computer

New Lower Prices

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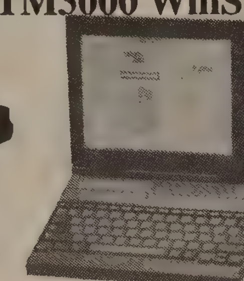
- 5.7 Pound 486SX/DX Notebook
- 10" VGA Display 640 X 480
- 4MB RAM Expandable to 6MB
- MS-DOS 5.0,Winodws 3.1,TravelPoint Device.

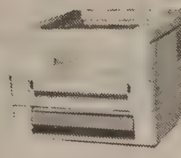
TI TM3000 WinSx



- 80386-20Mhz w/4MB RAM
- 10" VGA 640 X 480
- 60MB /80MB /120MB HD
- DOS 50, Windows 30
- Travel Point Mouse

$1695 / $1859 / $2099

TI MicroLaser



PS17 9PPM	$1159
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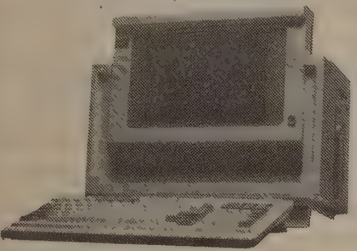
PS35 Turbo 9PPM	$1499
PS17XL 16PPM	$2399
PS35XL 16PPM	$2599
PS35XL Turbo	$2689
AppleTalk for Mac	$50

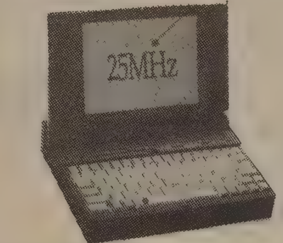
LCD / GAS PLASMA VGA PORTABLE



- 80386-40DX
- 1MB Exp. to 32MB
- 2 or 3 expansion Slot
- 1.2MB w/FHDC (1.44MB optional)
- VGA 640 X 480 16 Gray Sacle
- 2 Serial 1 Parallel
- 120MB Hard Disk
- One yearWarranty Parts & Labor

$1695 LCD / $ 1895 G.P.

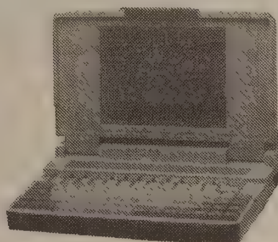
386-25SXL Notebook



- 80386-25SXL 2MB Exp. to 8MB
- 60MB/80MB/120MB Hard disk
- Stand-by Mode(includes CPU,I/O and
- Peripheral automatic power down)
- 1.44mb Micro Floppy Drive
- 1 Serial, 1Parallel, VGA Ext. Port
- Ext, 101Keyboard Port, Mouse port
- One SCSI Port, Car Cigarette Cable
- One year Warranty Parts & Labor

$1699 / $1799 / $ 1999

386-33DXL Notebook



- 80386-33DX w/8K Cache
- 4MB Exp. to 12MB
- 9.5" VGA LCD, 64 Gray Sacle
- 1.44mb Micro Floppy Drive
- 1 Serial, 1Parallel, VGA Port, 1 kb port
- Options:Fax/Modem,SCSI Port, more ...
- Suspend/Resume mode,sleep mode
- 80MB/120MB Hard Disk
- One year Warranty Parts & Labor

$1899 / $1959

486-25/33DX Notebook

- 80486-25/33DX w/8K Cache
- 4MB Exp. to 16MB
- 8.5" VGA LCD, 32 Gray Sacle
- 1.44mb Micro Floppy Drive
- 2 Serial, 1Parallel, VGA Ext. Port
- Ext. 101Keyboard Port,
- sleep mode
- 120MB Hard Disk
- One year Warranty Parts & Labor

$1999/$2395

McTEK 386-25SX/DX

- 80386-25SX / 25DX
- 1MB Exp. to 32MB
- 8 Expansion Slot
- 1.2MB Floppy Drive
- 2 Serial, 1Parallel
- 101 Enhenced Keyboard
- 40MB Hard Disk (25ms)
- Option : VGA card and monitor
- One year Warranty Parts & Labor

$599 / $659

McTEK 386-33/40DX

- 80386-33DX / 40DX w/64K Cache
- 1MB Exp. to 32MB
- 8 Expansion Slot
- 1.2MB Floppy Drive
- 2 Serial, 1Parallel
- 101 Enhenced Keyboard
- 40MB Hard Disk (25ms)
- Option : VGA card and monitor
- One year Warranty Parts & Labor

$699 / $759

McTEK 486-33/50DX

- 80486-33DX/ 486-50DX w/64K Cache
- 4MB Exp. to 32MB
- 7 Expansion , 1 Local Bus Slot
- 1.2MB Floppy Drive
- 2 Serial, 1Parallel
- 101 Enhanced Keyboard
- 120MB Hard Disk (17ms)
- Option : VGA card and monitor
- One year Warranty Parts & Labor

$1359 / $ 1799

McTEK 486-33/50 (EISA)

- 80486-33DX w/64K Cache
- 4MB Exp. to 32MB
- 8 Expansion Slot
- 1.2MB Floppy Drive
- 2 Serial, 1Parallel
- 101 Enhanced Keyboard
- 120MB Hard Disk (25ms)
- Option : VGA card and monitor
- One year Warranty Parts & Labor

$1819 / $2259

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NEC 5FG .....(In Stcok)	$1499
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HP Desk Writter (Mac)	$409
HP Scanner Color	$1490
Citizen GSX140 Plus	$299
Citizen GSX 130	$255
Citizen PN48	$335
Citzen 200GX (9 Pin)	$169
Canon BJ-10ex	$345
Okidata OL400	$685
Panasonic KXP1124i	$299
Panasonic 4410 5ppm	$739
NEC Model 95 (PS Level II)	$1459
QMS410	$1499
IBM Laser Printer Model 10	$1579

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Microsoft Mouse	$95
Scanman Plus/256 w/OCR	$399
Artiscanner 300dpi Color	$1029
ScanPlus 3000 Color	$699
Colorado 120mb tape backup	$225
Colorado 250mb tape backup	$285
Modem 2400 Baud Int.	$65
Modem/fax 2400/9600	$99
Everex 3MB expansion Card	$109
Norton Anti Virus	$65
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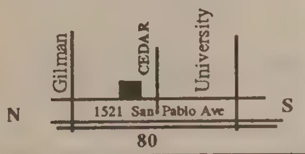

with tax-paid staff "jobs"—public funds supporting them between elections.

Now, low-cost reg records are becoming available for micros—on diskettes or (instantly obsolete) CD-ROMs.

USING COMPUTERIZED VOTER REG RECORDS

Value-added extras from private-sector providers may include voter's phone, age or age-range, sex, census tract, GIS data (geographic information system), special processing software, etc. Records may also include voting history—who voted in which elections. This is valuable to poorer campaigns with limited resources, but also used by registrars—e.g., identifying registrants who may have moved and should be revalidated, providing another audit control against voter fraud, fascinating to match against death certificates, etc.

Users can create walking-order precinct lists for campaign volunteers, direct-mail address lists, carpool lists for election day, and many other campaign uses, including targeted opinion polling. (Sabotage political polling: *Lie!* Double your adverse impact with answers systematically opposite to your views.)

These computer files were also used by majority incumbents of both parties for gerrymandering in numerous states. (Computer-assisted gerrymandering is often called "burtonizing," after California's late Phil Burton—applauded and cursed for automating the most sophisticated block-by-block gerrymandering in the nation.)

ABOUT VOTERS' PRIVACY

Conflicts between personal privacy and public decision making raise numerous policy alternatives—each having significant ramifications for a democratic process.

•Should voter registration records be secret? For instance, California judges joined peace officers and successfully lobbied special treatment for themselves; permission to keep their registration data secret. However, harassed and abused spouses have no such protection, nor do child-support scofflaws, nor wealthy kidnap targets.

•Should voters be allowed to list (public) mailing addresses, but keep (different) residence addresses secret—except, perhaps, against judicial query?

•Should records be open for public review, but not for copying? Should citizens be prohibited from writing down addresses or party affiliations? Incumbents would love it.

•Should copying be limited to hand-copying or xerography or paper-only printouts—or should fast, nonpolluting, easy-to-use (and -abuse) computer copies also be available, as is so often advocated for other public records?

Perhaps the two most basic trade-offs:

•Regarding privacy: Is it more important that voters have privacy, or that those who want the power to make political decisions be identifiable—and verifiable?

•Regarding access: Is it more important that legal users—citizens desiring to exercise inexpensive-but-effective political advocacy—be able to do so, or that their legal speech be made ineffective to protect against (potential) illegal use, e.g. by direct-marketeers?

Democracy—and participation therein—is an inconvenience.

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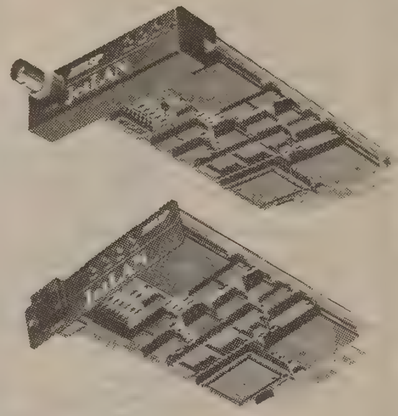

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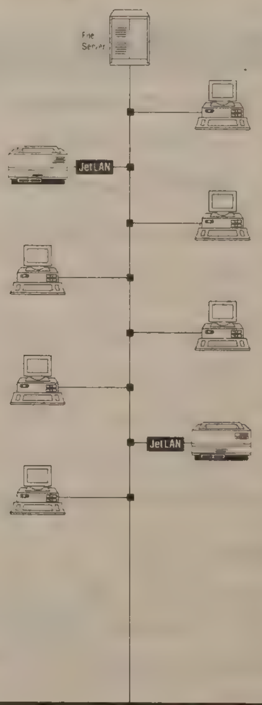

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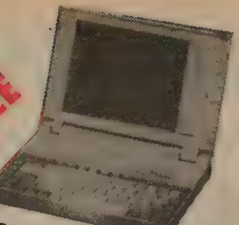

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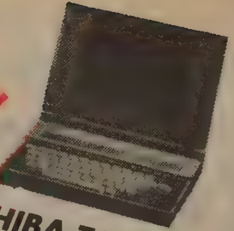

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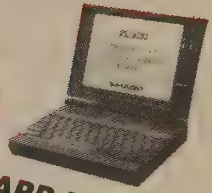

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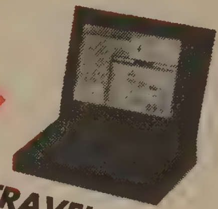

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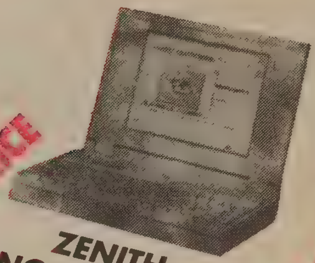

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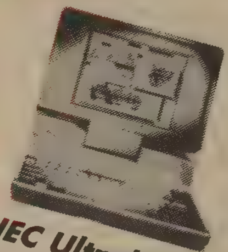

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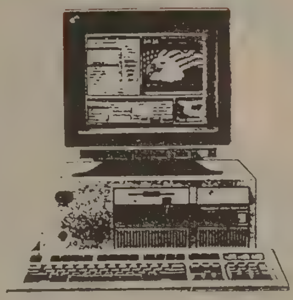

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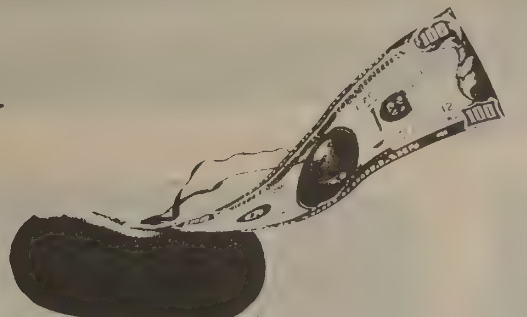

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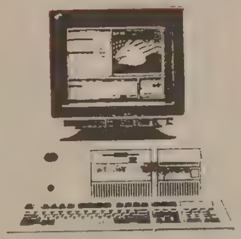

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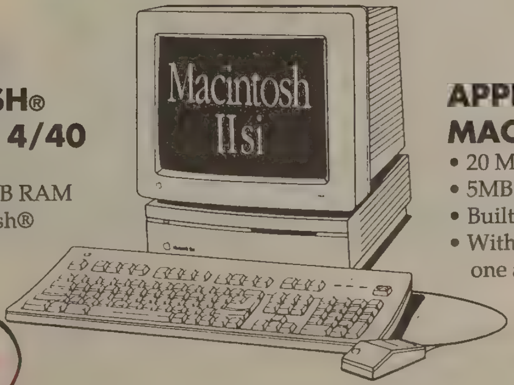

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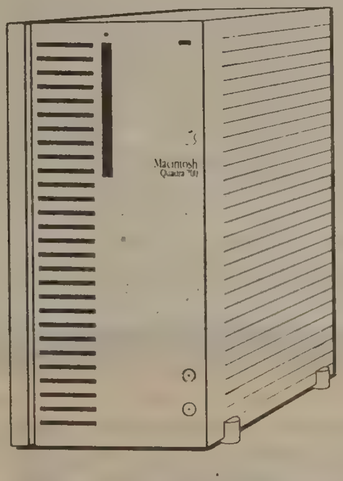

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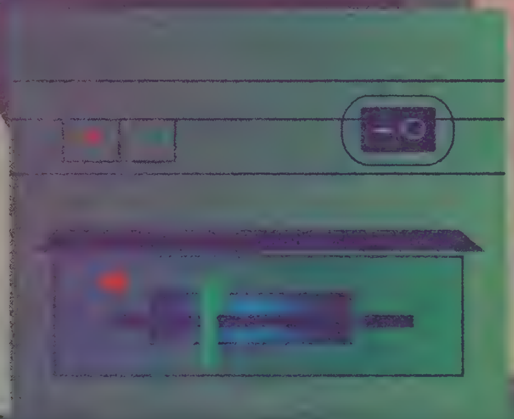

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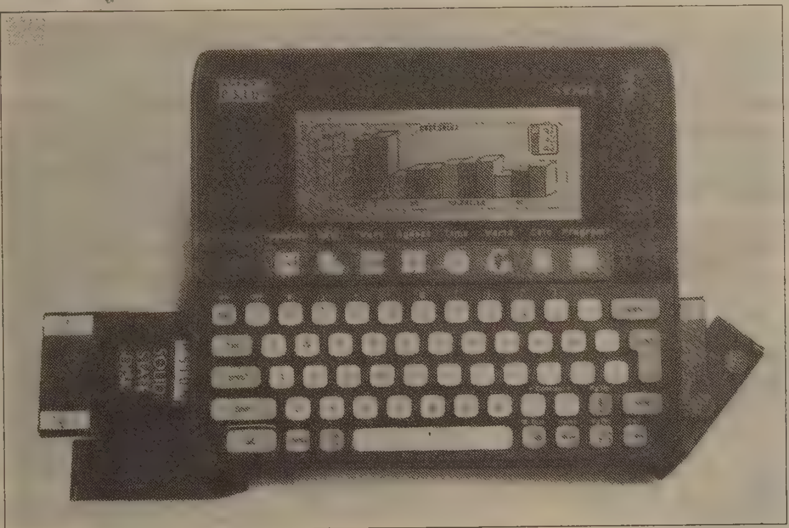
Psion UK has long been known for its Organizer series of palmtop computers; these machines have been very popular in the United Kingdom for some years now, and have been used by businesspeople and lawyers to organize their days. In their latest product offering, the Psion Organizer 3, the engineers at Psion have jumped to grab a leadership position in the emerging field of palmtop organizers by introducing one of the more powerful units now on the market.

The new $549 Psion is most remarkable for its styling, both in the exterior case and in the user-interface design. Closed, it measures a mere 6.5" x 3.3" x .9", smaller overall than the Sharp Wizard OZ-8000 series. The screen is a 240 x 80 dot bit-mapped display which is capable of about 10 lines by 40 characters across. This display is used to good effect with the Psion's proportional fonts, icons, and pop-up menus and dialog boxes, making the unit much easier to use than many of its competitors. Open, the Organizer 3 features a row of icon keys for quick access of the various features, and a QWERTY-layout keyboard.

The keyboard is, I believe, the Organizer 3's main drawback. Though the Psion is, in my opinion, about the ideal size for a palmtop, truly small enough to fit in a pocket without difficulty, this makes the keyboard a little cramped. In addition, the keyboard's "mushy" feel makes it difficult to determine by touch whether you've hit the key you intended; I found it difficult to type quickly with this keyboard. However, with some practice, I was able to type almost as quickly on this unit as I can type on my Sharp Wizard OZ-8000.



The Psion Organizer 3 is one of the most powerful palmtops currently available.

The Psion features a simple database, a word processor, a calendar/agenda, a local and world clock, a calculator, and even a built-in BASIC-like programming language. The word processor is really the Psion's standout feature; it can handle multiple fonts and styles, and can even print directly to a laser printer with the proper printer drivers installed. It is compatible with Microsoft Word.

The operating system also supports multitasking, no mean feat in such a small machine, and thus your programs can actually run in the background. For example, with the optional spreadsheet card, you can be editing your word processing document while you're doing a long background recalculation.

The PC link feature is also quite capable; though the user interface on the PC side is not quite as friendly, the splendid interface on the Psion side of things makes up for it. You can attach your remote PC to the Psion as though it were a "network drive"; the drives on the PC look like additional drives attached to the Psion, and you can peruse files, open them, and save information directly to the connected PC.

Unfortunately, installation of the software is a bit tricky, and not as straightforward as it should have been. A particular problem is that to install the word processor conversion software to allow the Psion word processor to communicate with other standard PC word processors, you must perform a rather complicated installation process, which is not documented very well. Once it's installed, however, it works like a charm.

The Psion has many nice touches. For example, while viewing a database entry, you can hit the "dial" key, and the unit will autodial the numbers for you (via the built-in speaker on the bottom of the unit). You need only hold the palmtop up to the phone and hit the appropriate key.

In a major improvement over what happens with some other organizers, every program on the Psion retains its internal state when you turn the unit off, so when you turn it back on (or switch between functions), you will be returned to exactly the same point you left off. Even if I start working on a spreadsheet (an optional add-in card), turn the unit off, remove the spreadsheet card, and turn the Psion back on, I can still choose the spreadsheet option and it will display the spreadsheet as I was last viewing it. If I try to edit it, I'll be prompted to insert the spreadsheet card, and once I've done that I can continue editing the spreadsheet.

Speaking of the optional $149.95 spreadsheet card: this is a full-function program capable of reading and writing Microsoft Excel and Lotus 1-2-3 file formats. Unfortunately it does not include a macro language, but it will preserve Lotus 1-2-3 macros and write them back out to the file (though you cannot use them while editing them in the Psion). The spreadsheet includes pull-down menus and even a graphing function. Due to the lack of macro support, it is not fully Excel or 1-2-3 compatible, but in other respects it is quite full-featured.

The Psion 3 does not have many drawbacks, but there are some, in addition to the somewhat difficult-to-use keyboard. The card slots are not PCMCIA, which means the large numbers of PCMCIA cards and accessories currently becoming available will not be usable on the Psion. To balance this, however, Psion UK does indeed distribute a number of proprietary cards for its two slots, including Flash RAM cards up to 2MB, and various application cards ranging from chess to the spreadsheet card. (Flash RAM, as discussed in last month's column, acts like a high-speed virtual hard disk, retaining memory even when the unit is turned off.) In addition, since the Psion has a graphical user interface, these applications are generally easier to use than many of the DOS-based applications available for the other palmtops such as the $699 HP 95LX.

NEW HARDWARE

Gateway2000, famous for its low-cost, mail-order, PC clone hardware, has recently begun to ship the Gateway Handbook, a $1295 sub-subnotebook measuring 5.9" x 9" x 1.4", with a 286-level processor, 1MB of RAM, and a 40MB hard disk. This machine is more powerful than most of the other PC-compatible palmtops, though it sacrifices portability and battery life to make room for the hard disk. Nevertheless, it is a very portable unit, with full-size 640 x 400 CGA screen, a near-full-size QWERTY keyboard, and rechargeable batteries which last up to four hours per charge. This is a near-laptop power unit in a handheld-sized package. It does not have PCMCIA slots, however, though it does have a variety of expansion ports, including the ability to add a 3.5" floppy drive and a modem.

Zeos, another well-known mail-order PC clone manufacturer, has also introduced a $595 DOS-compatible palmtop they call the Pocket PC. This unit weighs in at a light 1.3 lbs., measuring 4" x 9" x .9". It comes with a V30 processor (a fast 8086 clone), 1MB of RAM, and 1.5MB of ROM (which consists of DOS 5.0 and a bundled copy of Microsoft Works). It includes two PCMCIA 1.0 slots. (Birrell Walsh will be doing an extended review of this unit in an upcoming issue of *MicroTimes.*)

PCMCIA CARDS

As I mentioned in last month's column, the standard for handheld computing device expansion is called PCMCIA (don't ask me what it stands for). There are two revisions of the standard, called 1.0 and 2.0. If your palmtop accepts PCMCIA 1.0 cards, that means it will accept most RAM and Flash RAM cards, most ROM application cards, and some modem cards. PCMCIA 2.0 is a full-fledged palmtop expansion bus, which can handle any kind of peripheral including micro hard disks and high-speed fax modems. Most current palmtop computers take PCMCIA 1.0 cards.

Meanwhile, the world of PCMCIA cards and peripherals marches on.

One interesting potential market for handheld devices is to use them as electronic books, like the Sony Data Discman. Distributing information on compact discs has a number of advantages, not the least of which is inexpensive mass production; the actual cost

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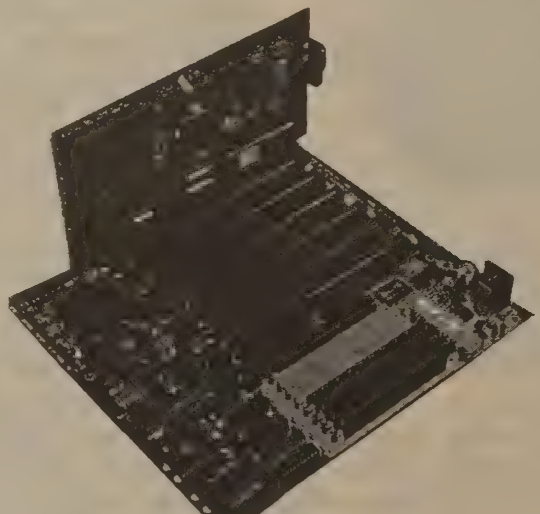

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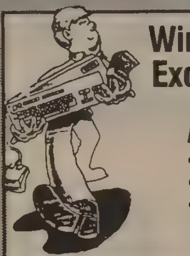

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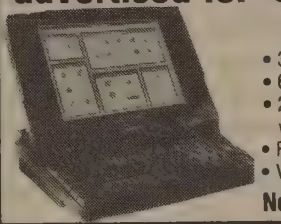

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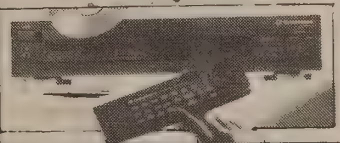

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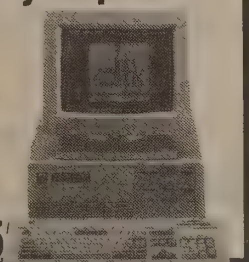

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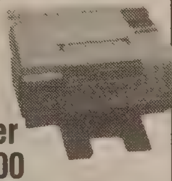

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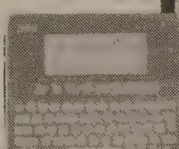

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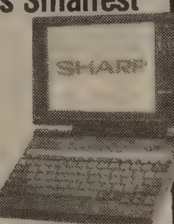

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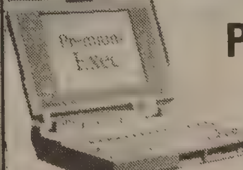

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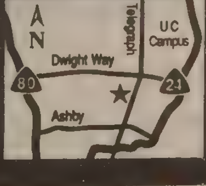

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of reproduction of a compact disc is under a few dollars per disc. However, palmtop computers can also be used as "electronic book readers" as well, with information being distributed via PCMCIA and other kinds of cards.

The difficulty with using IC cards to distribute information is cost. It is much more expensive to store large amounts of information on an IC card than it is on a compact disc. However, there are a number of advantages as well. First of all, IC cards offer much faster random access; all the information in a PCMCIA ROM card is, essentially, available instantly. In addition, there are no moving parts to a palmtop computer; your machine will not be subject to problems if you are using it in a rugged environment, in a bumpy train, etc. Solid-state ROM cards are smaller and also far less power-draining than the drive required to read a CD-ROM. However, something must be done to minimize the cost of this form of data distribution.

One way to deal with this issue is via compression. Stac Electronics, as mentioned in last month's column, has produced RAM cards with onboard on-the-fly compression. A company that specializes in compressing ROM cards is Microlytics, Inc., whose parent company, SelecTronics, is known for its pocket dictionaries, thesauruses, multilanguage translators, and so forth. They have a proprietary compression technology which is capable of much higher compression rates than most well-known compression algorithms are capable of. For example, they compressed their Word Finder Thesaurus a factor of thirty-five times, the Random House Encyclopedia a factor of 3.3 times, and so forth. This kind of compression technology holds the promise of being able to distribute a lot more information on these PCMCIA ROM cards than would otherwise be possible, keeping the costs down to the point where they could be quite affordable for the average consumer for many "electronic books." Currently, PCMCIA-based ROM cards can store as much as 64MB of uncompressed information on a single card.

Dr. Neuhaus (run by a Dr. Gottfried Neuhaus), a European manufacturer of telecommunications and semiconductor-based products, has announced the shipment of its Fury Card 2400 data/fax modem which will allow PCMCIA 2.0-compliant palmtops to have 2400 baud data with MNP 5 compression and 9600 baud fax communications capabilities, all on a single standard Type II PCMCIA card (i.e. 5mm thick).

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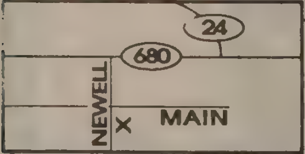

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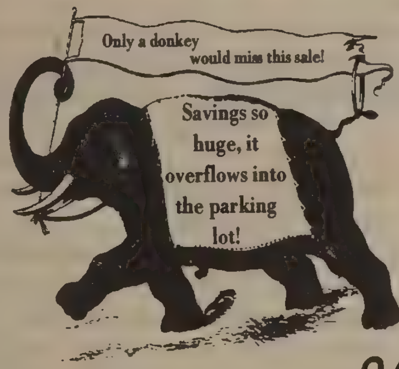
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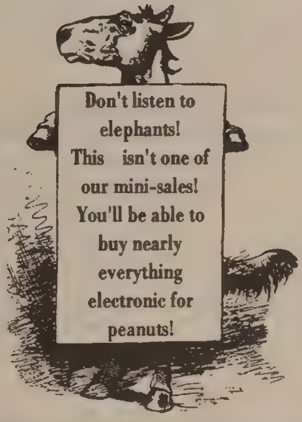
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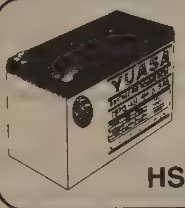

It doesn't take long to sell out of these popular batteries when we get a batch in, so stock up now! These Yuasa NP7-12 rechargeable lead-acid batteries are rated at 12VDC, 7 amp/hours. New, '91 date codes. 2.5" x 4" x 6" with solderless quick-connect tabs.

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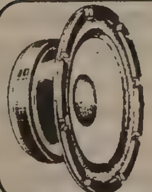

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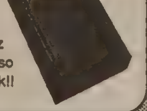
BUZ74	TO-220	N-Ch	500V	40W	2A	3Ω	11324	$ .95
IRF441	TO-3	N-Ch	450V	125W	8A	.85Ω	11293	$4.50
IRF512	TO-220	N-Ch	100V	20W	3.5A	.8Ω	11296	$ .75
IRF611	TO-220	N-Ch	150V	20W	2.5A	1.5Ω	11326	$ .75
MTM6N60	TO-3	N-Ch	600V	150W	6A	1.2Ω	11576	$7.50

Pager Project: You figure it out!



Just in...for those who always wondered how a pager works. For only $6.95, you get to take one apart and find out! The only thing we have been able to discover about these units is that they are new, use 2 AA cells and operate on a 100.3 MHz subcarrier. Measures 2.5" x 4" x 1". Made by SPANtel, Model 1004. No display, so we think they either beep or have voice annunciation. You tell us how they work!!

HSC# 13511 $6.95 ea. or 10/$65.00

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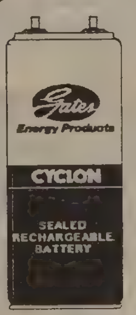

These Gates Cyclon sealed rechargeable lead-acid cells are always in demand at HSC, so don't wait to order if you want some! These cells were removed from multi-cell packs, so the tabs have been soldered, but they have plenty of life! We even learned that you can "rejuvenate" a flat cell by removing the outer metal sleeve and popping out the rubber plug at the top. Just add some distilled water like a car battery! Some of the 24 VDC multi-cell packs are also available.

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J Cell	5.34" x 2.03"	2V @ 12Ah	1.8 lb	13512	$5.50	$60.00
BC Cell*	6.78" x 2.55"	2V @ 25Ah	3.5 lb	13514	$10.00	N/A

*Note: this cell has screw terminals, not tab terminals

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With the optional spreadsheet card, you can be editing your word processing document at the same time while you're doing a long background recalculation.

MORE ON NEWTON

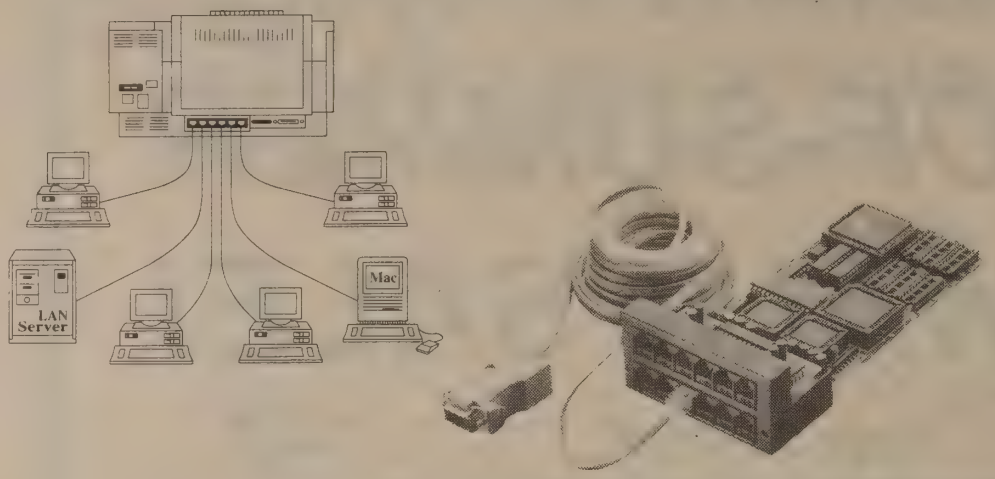
Since last month I've learned more about Apple's Newton, which is intended to sell for the revolutionary price of $1000, a breakthrough price for a full-power pen-based unit. If Apple makes its price point, it will be the first manufacturer to break the magic $1000 barrier for potential mass-market acceptance of a pen-based product.

Most current pen-based computers offer laptop-level power at a laptop-level price; this means they cost from $2000 on the low end (the PoqetPad from Fujitsu, formerly Poqet Computer) on up into the several-thousand-dollar range. As I mentioned last month, these machines are currently used primarily in vertical market applications, point-of-sale and data entry applications where keyboard input would be impractical or ineffective.

Because true pen-based applications often require more computational power than most inexpensive palmtop computers can offer, the penetration of the pen interface into their natural palmtop and subnotebook market has so far been rather small (despite the success of the Sony and other inexpensive palmtops in Japan). In addition, most of these "pentop" computers are often much larger and heavier than most palmtops, making them not much more portable than your average laptop, and therefore difficult to sell (why give up a keyboard if you're going to have to lug around a laptop-sized computer anyway?)

The PoqetPad from Fujitsu is the only true full-power, handheld, pen-based machine currently shipping in the US; it retails for $1995 and weighs only 1.2lbs. The Newton, however, at its hypothetical $1000 price point, could potentially break the barrier of acceptance to pen-based mass-market consumer computing by introducing a powerful RISC-based machine with sophisticated software to the market. Whether Apple can actually make this target price has yet to be seen, but there is no question that the unit would be a very powerful one; the ARM 610 RISC processor at the heart of the Newton is reputed to have twice the processor power of a Mac IIfx. Interestingly, Apple has also signed an agreement with Sharp Corporation for the latter to distribute and sell a Newton-compatible unit in the United States.

Next month: More on the Apple Newton and more reviews of other currently shipping palmtop computers.■



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10 BaseT 8 Port Hub	250
10 BaseT 14 port Hub	550
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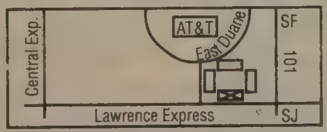

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FAXGrabber, $149
Calera Recognition
Systems, Inc.
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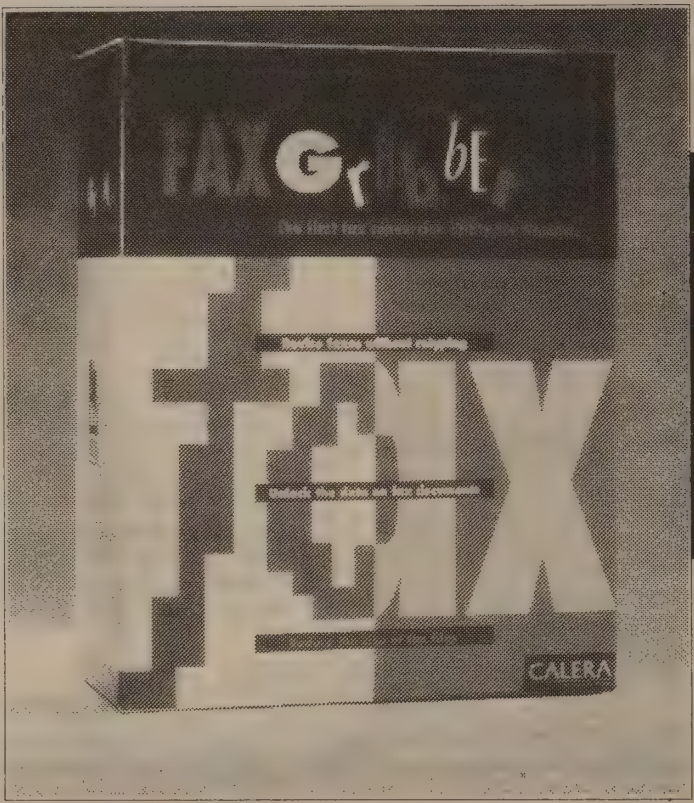
Sunnyvale, CA 94086
1-800-4-CALERA

Windows 3.1, $149.95
Microsoft Corp.
1 Microsoft Way
Redmond, WA
98052-6399
1-800-426-9400



> **You can instruct the FAXGrabber to automatically intercept the communication and immediately translate it into a word processing, spreadsheet, or other format.**

BY ED KAHN

I tend to resist the changes in computer technology until I am convinced that it will actually offer me something I want, then I am quick to embrace them. Two changes that I have stayed away from are Windows and fax boards. Recently, I was forced to reevaluate my position on both of these products.

I have stayed away from Windows because most of the applications I run work perfectly well and I know my way around DOS just fine. For years I have used DESQview and find it to be a superior multitasking environment. But time marches on and more and more applications are coming in Windows-only versions.

The latest bunch of fax products have convinced me that I will have to use Windows. New capabilities are offered that just are not available in a DOS environment. There are many advantages and disadvantages to fax boards, especially for portable computer users. Let me outline some of the pluses and minuses.

The fact that a fax board does not have a printer is a disadvantage if you need a printed copy. On the other hand, fax boards let you store your faxes in your notebook until you are around a printer. In the meantime, you can read them on the computer's screen. Plus, when you do print these faxes, they will be on decent paper rather than the thermal paper most standalone fax machines still use.

The most obvious weakness of a fax board for sending a fax is that you cannot easily fax a piece of paper. You must scan the document into the computer before sending the fax. If you do not have a scanner, this is impossible. Even if you do, it is not as simple as dropping a piece of paper into a fax machine and entering a telephone number. For instance, if a company sends me a form to sign and return, I can be out of luck with a fax board. There is no simple way of putting my signature on the form and returning it. I could scan in a signature and insert that file into the outgoing fax. Windows let me cut and paste my signature from one file and onto the outgoing fax.

The advantages of a fax board may be enormous. When I get a conventional fax, the file is printed out and often promptly lost. But with a fax board, I receive the fax as a file in my computer and I can call it up any time I need it. But I am limited in what I can do with it. It is not a word processing, database, or spreadsheet file. Rather, it is a graphics image composed of dots and spaces that look like letters and numbers. Only a paint program will recognize this file format. If there was a way of translating this picture into an applications program, then there would be real value in saving the faxes I receive. There is.

Calera Recognition Systems' FAXGrabber converts faxes into word processing and other application files and is available now. It runs only in a Windows environment. But look what you can do!

When the fax comes in on a fax board, you can instruct the FAXGrabber to automatically intercept the communication and immediately translate it into a word processing, spreadsheet, or other format. There is a wide choice of application formats to choose from,

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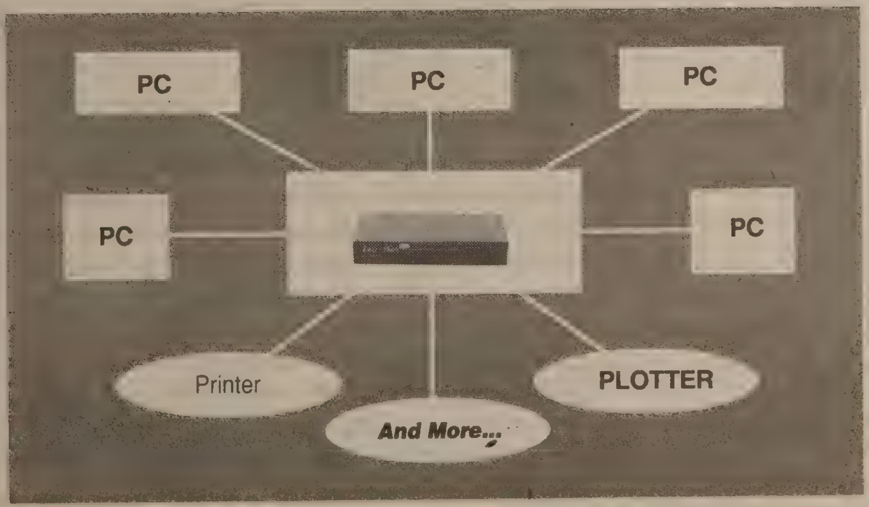

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including ASCII. Now, when you ask a colleague to fax you a spreadsheet, you will be able to insert the data into a working copy of your spreadsheet program. In the past, if you wanted to work with figures, you had to send the file by modem. While that is still a better way for many jobs, this makes the fax into a much more useful tool. And it breathes new life into a fax board for me.

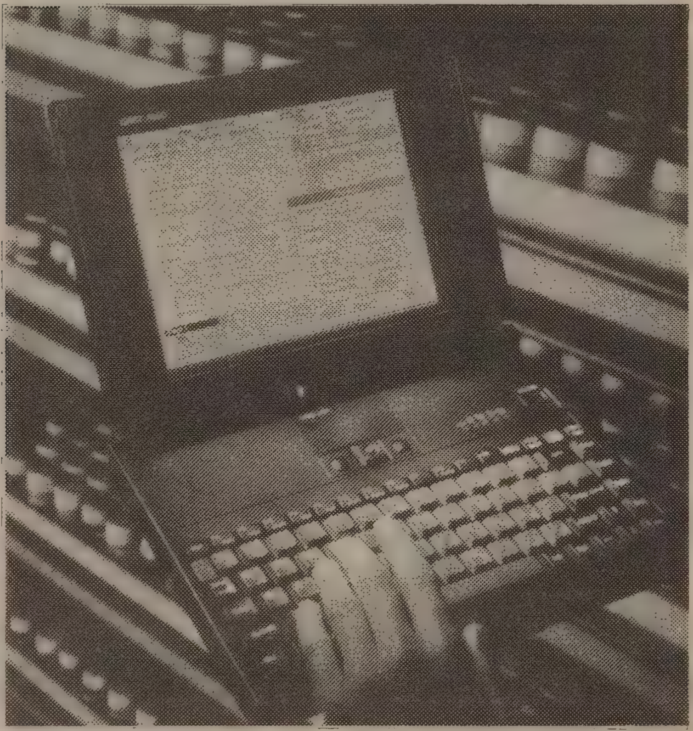
Calera argues that its technology offers many advantages. It suggests that a translated file will take up less space than a fax document. Accordingly, it is easier and quicker to copy and send the file to others. While this is true, the real advantage from using FAXGrabber is that you will be saved the chore of reentering a document that you want to use rather than just view. For instance, a writer who receives a research document can now integrate this information directly into a piece that he is writing. I have long dreamed of this capability.

The technology Calera uses is the same as what it uses for its Optical Character Recognition software. Their OCR software is excellent and boasts a recognition rate of higher than 99%.

For me, the advantage of FAXGrabber software is not the immediate translation of incoming faxes, but rather the ability to put faxes into word processing and other application formats when you need to. If you have been dreaming of this capability, it may be time to get a fax board and the Calera software. ■

Computer Of The Month

GRiD 1660



RESOURCES:

GRiD 1660, $3395
GRiD Systems Corp.
47211 Lakeview Blvd.
Fremont, CA
94537-5003
1-800-222-4743

GRiD, long known for industrial strength computers, has just released its lightest and most powerful notebook computer, the 1660. Promoted as your primary computer with portability, it weighs only 5.9lbs. This 386 SL, running at 25MHz, comes standard with 2MB of RAM, expandable to 20MB, a 3.5" floppy drive, and a 125MB hard disk.

The GRiD 1660 was designed with the Windows user in mind. As Windows becomes a standard operating environment, it is appropriate that new computers, especially notebooks, offer the features GRiD has included. Its 2MB of RAM is a lot for most DOS applications, but if you are going to use Windows, you really need at least 2MB. But 4MB is better and costs an additional $295, factory installed.

A mouse or other pointing device is also essential to work in Windows and GRiD includes a built-in trackball. While I prefer a mouse, a trackball quickly becomes necessary when you are away from a desk and don't have room to spread out.

The screen on the 1660 measures 10" diagonally. If you work primarily in one location, an external VGA monitor attaches easily through the port on the back. This will provide you with good color—while I enjoy Windows on a color display, I usually find it a bit tedious on a monochrome monitor. If you are used to using Windows on a color display, shifting over to the GRiD black-and-white screen on the 1660 will not be difficult. But if you are new to the Windows environment and beginning from scratch on a black-and-white display, it is a little more difficult to become comfortable with Windows.

The keyboard on this portable is adequate and well laid out. As with most of the good notebook computers these days, you can easily connect a standard PS/2 keyboard of your choice.

The 1660 is powered by a nickel metal hydride battery. These batteries are designed to provide longer life while weighing less. In addition to a superior battery, GRiD has incorporated many power management features into the computer. The result is a battery pack that will operate for up to three hours. There is also a built-in suspend and resume feature, letting you effectively shut down the computer while keeping your place in the middle of an application. This goes a long way toward conserving power. Suspend can hold your place for up to a week.

Its built-in suspend and resume feature can hold your place for up to a week.

One of the options GRiD offers is a fax/modem card ($400). It will even wake your computer from suspend to receive faxes and email and return back to sleep when the transmission is complete. This feature conserves power, but still lets you get vital electronic communications.

To compensate for doing without all the features that pushed the older portables up to and over 15lbs., GRiD offers an optional docking station ($695) that can hold one full-length and one half-length expansion card.

The 1660 notebook computer comes with MS-DOS 5.0 and Windows 3.1. A carrying case costs $95. GRiD systems are top of the line and have a price that reflects this quality. From its magnesium case to its excellent design, this is a delightful computer to use. ■

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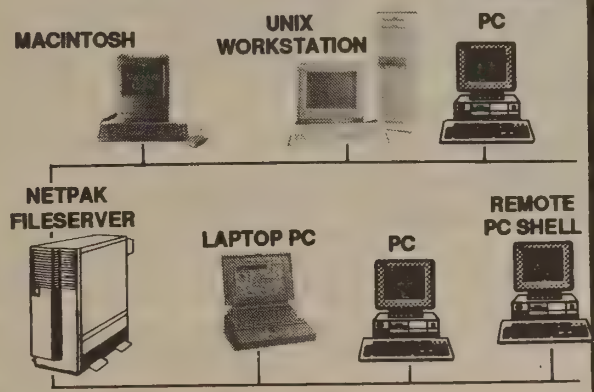

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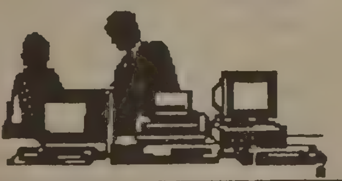

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Accounting Systems—Security And Internal Control

Minimizing The Risk Of Employee Theft And Fraud

BY DAVID A. SIMON, CPA, AND JENNIFER ROBIN CHERNISS

Nationally, employees are stealing as much as $120 billion annually, according to estimates from the US Department of Commerce. As our dependence on computers proliferates, small businesses, who tend to rely upon a few employees with ready access to the computerized accounting system, are especially vulnerable. Thus, it is imperative that management implement the best internal control structure possible within the practical limits of their resources.

Internal control is the process of safeguarding the firm's assets and assuring compliance with management dictates. A good internal control system should be included as a basic element of any plan to implement a computerized accounting system. The computer procedures should then be reviewed periodically.

Anyone who spends time around microcomputers knows how difficult it is to maintain their security, and as a CPA I'm particularly conscious of this whenever I walk into a business office or begin to work with a client's accounting system. In a small firm, where procedures are often on a more casual or "friendly" basis than in a large, highly structured bureaucracy, it's often too easy for an employee to access confidential records, modify, and even remove them.

A data entry clerk at an insurance claims office entered fictitious claims into the system which were payable to in-laws. The computerized accounting system automatically mailed out the checks.

Although even a routine review of ordinary accounting controls would have exposed this type of opportunity, computerized systems sometimes lull us into a false sense of overconfidence. Everything seems to occur automatically and, unless a problem makes itself obvious, it can be easy for managers to overlook internal control weaknesses. Many businesses seem to figure that if they've gotten the computer to generate all the reports they want, they must have done everything right.

If an employee physically handles cash, inventory, or other assets, and at the same time has access—authorized or not—to the accounting of those assets, he or she may well be in a position to both misappropriate property and cover up the fact.

I recently heard of a typical case of a bookkeeper for a small San Rafael lighting company. Although lacking any prior criminal leanings, Sam had found himself in a financial squeeze. Recent morale problems in the office had added to his personal pressures until he justified to himself the need to "borrow" from the company, and he began forging checks. Since the bookkeeper was responsible for reconciling the bank account, he simply destroyed the forged checks when the bank returned them with the monthly statements. Sam added the cost of the forgeries to inventory.

This scam was easy, but preventable. One internal control procedure, obvious in hindsight, would have been to deny the bookkeeper access to check writing. Beyond the administrative aspect of the bookkeeper's job description, though, this solution should include the requirement of a computer password for access to automated check writing functions.

HOW SECURE ARE YOUR INTERNAL SECURITY CONTROLS?

No internal control system will completely protect the business from all breaches of security. The general strategy behind microcomputer security is to deter a would-be intruder with layers of obstacles through which he would have to pass. The more layers, the more difficult it is to intrude without revealing one's identity.

Every control, however, imposes a cost and, perhaps, a substantial inconvenience. Therefore, each control should be evaluated from a cost/benefit perspective—some security measures just aren't worth it for some companies. Fortunately, good planning, well-designed procedures, and some relatively inexpensive software techniques can substantially reduce the likelihood of being swindled.

When setting up a computerized accounting system, some simple and timely precautions could greatly enhance security and accountability. Give careful attention to who authorizes purchases, who handles checks, as well as accounting for inventory and sales procedures.

Susan owns and operates a computer hardware store in Fremont. With only ten employees, it's not practical to fully segregate functional duties, but there still needs to be a way to protect the business against errors and irregularities. With so few workers, Susan was especially vulnerable to collusion, since employees in such an environment have more opportunities to know each other and even cover each other's duties.

> ***Create a working environment that encourages people to keep their integrity. In every embezzlement case I've worked on, the perpetrator was seriously underpaid.***

Tom, a salesman, had been shipping expensive products to a "customer," who in reality was a friend. The company was never paid and Tom had managed to delete the accounts receivable information, obliterating the electronic history of the transaction.

While Tom routinely (and legitimately) logged onto the sales module of the store's accounting program, he was locked out of the accounts receivable portion through password access. But since he still had access to

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David Simon, CPA (M.S., Taxation), is in tax and accounting practice in Oakland. His clients include a variety of professionals and businesses. He can be reached at (510)893-5753. Jennifer Robin Cherniss is a free-lance writer living in Berkeley.

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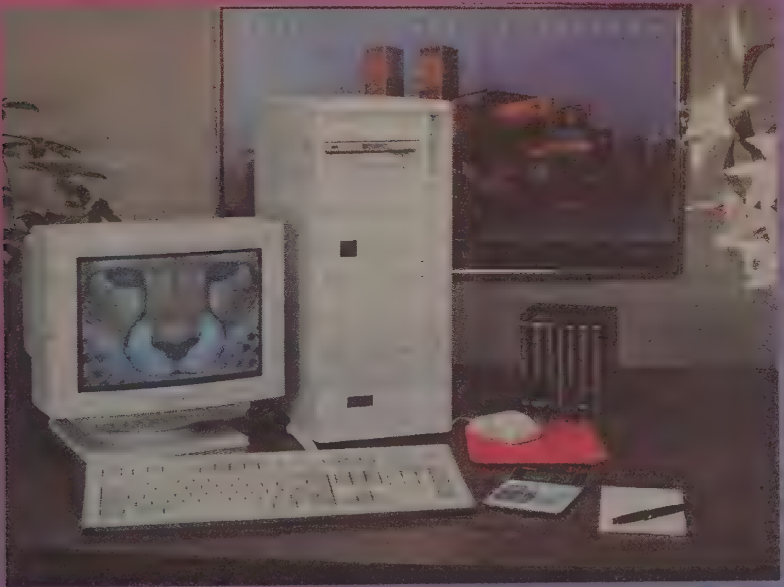

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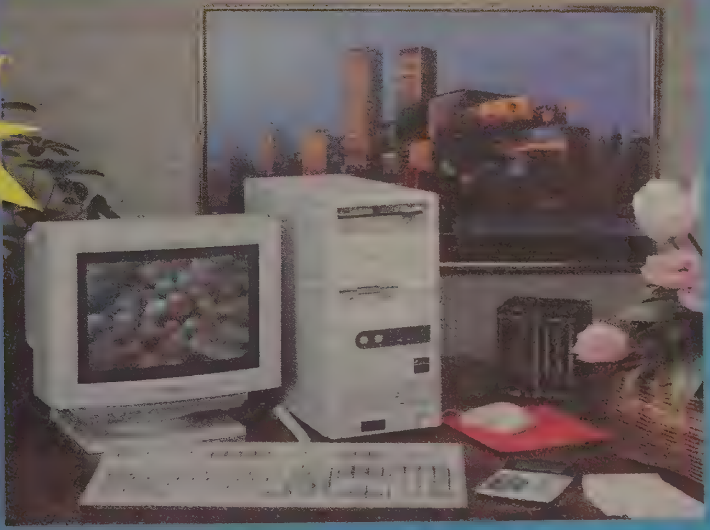

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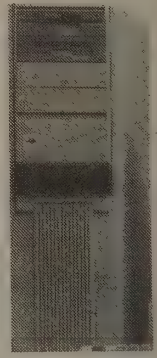

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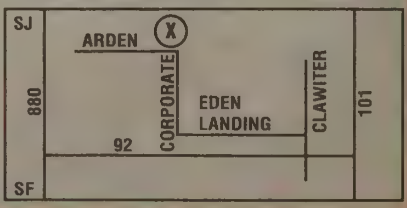

the system itself, he persuaded a programmer to help him use computer correction codes (special features of the source code) to selectively wipe out accounts receivable data.

This illustrates the importance of manually prepared control totals and physical documentation, and retaining a hardcopy audit trail—a transaction listing should be printed out as soon as transactions are posted or processed, and the printouts should be kept in a safe place. No matter how skillfully a system may be invaded and doctored, this would ensure a complete, concrete record of original entry.

A vital aspect of high-end accounting software packages are their extensive abilities to provide such audit trails. These are presented in the form of reports which are generated at each level of transaction entry and processing, creating a complete record of every stage of processing. Your accounting software can be told to produce some of these documents automatically as part of a chain of required steps; other reports need to be run as part of established, supervised office procedures.

Tom's opportunity might have been thwarted had Susan given more careful consideration of use of computer access codes (passwords). Even though Tom couldn't gain direct access to accounts receivable transactions, he was still able to frustrate the system by obtaining indirect access through other system functions.

To close the door tighter, access to different functions should be granted restrictively, only to those specific functions and files where there is a clear need.

Virtually all high-end accounting packages make available multiple levels of password protection. These can be as restrictive as permitting one individual employee to open only one file to which he or she is assigned. At the highest level, perhaps only the owner (and the computer consultant) would have full knowledge of all password assignments and the ability to override anyone else's designations. Middle levels of protection could be granted to those with responsibility for assigning access to certain areas within their realm of responsibility.

Packages offering password protection, such as Automenu Software Management System, Direct Access, and Precursor, are easy to use, and can be configured to require multiple passwords.

Yet another approach is to restrict access to files and program functions by physically putting a terminal in a place from which unauthorized people will be deterred from entering, and "wire" that terminal with only narrow access to other parts of the system. In software terms, this is done by assigning access restrictions by site-specific passwords that apply to specific terminals.

For example, the sales terminals, which only input sales information, are placed at the sales desk. Similarly, the all-powerful manager's computer would be physically isolated by a locked door to her office.

This business was open to fraud by leaving the program disks and source code where they were readily available. An owner who leaves expensive accounting program diskettes unlocked on the premises, or treats software piracy like some kind of fringe benefit, makes it that much easier for a dishonest employee to circumvent system controls. Every high-end accounting software vendor warns its customers to store the program disks in a safe place, and that ain't just to keep them warm and dry.

FUNCTIONAL RESPONSIBILITIES—SEPARATED BUT EQUAL

Central to internal control is the segregation of functional responsibilities—no one should have their thumb in so many pies that it would be easy to both commit an error or defalcation and then cover it up. For example, those who are in a position to authorize transactions, or who control or could physically walk out the door with inventory should not have access to accounting functions.

For small companies, complete separation of functional duties is often not practical.

The greater your reliance on a small group of employees wearing multiple hats, the more you need to be in control of cash transactions. This may mean personally signing and mailing checks after reviewing each invoice. Also, some degree of management level supervision of other accounting areas is called for. Within the accounting system, the records most likely to be tampered with are inventories, receivables, and payables.

The following rules, adopted from *Guide to Installing Microcomputer Accounting Systems*, with permission of Practitioners Publishing Company, Ft. Worth, Texas, are applicable to most microcomputer accounting installations:

•The microcomputer system should not impair the normal separation functions required for good internal control.

•Everyone involved with the accounting records should be trained to operate the computer.

•Adequate documentation and clearly written instructions should exist for each system. Written operating procedures are a necessary first step for management control.

•Manual controls should be used to track critical balances and provide control totals. Some of the risk areas are cash, accounts receivable, accounts payable, payroll, and inventory. Procedures for data file and software backup, and virus protection, should be established.

•All transaction source documents should be canceled as they are entered into the system. At a minimum, the computer operator should initial and date the documents to designate that they have been processed.

SURROUNDING YOUR ACCOUNTING PACKAGE

Remember that password protection, alone, can be violated by a clever hacker. If you hide batch files, files of password lists, and other sensitive files, you make password protection harder to circumvent.

Another control technique is user logging. Programs such as Logit! and Logger can keep detailed, daily logs of who uses the computer, clock time, and the programs and files used. In addition, these two programs can be useful for performance monitoring—to see how much time each employee spends playing Solitaire when you're trying to crank out that big project by deadline time.

One handy DOS feature is the ability to lock up a keyboard by "telling" a desktop computer that its input is coming from some source other than the keyboard. The nifty batch routine below, put together by Forgione and Blankley in *Journal of Accountancy* (June 1990), combines the lock-out feature with some DOS bells and flashes to produce an embarrassing alarm effect for a would-be intruder.

```
ECHO ON
PROMPT $e[5;37;41m
CLS
ECHO <ALT 7> <ALT 7> <ALT 7> <ALT 7> <ALT 7>
CTTY NUL
```

Consult your DOS manual for instructions on how to create a batch file. Combine this routine with a branching batch file that wants your password as input, or else sets off the "alarm." Simply reboot your computer to stop the routine.

ACCOUNTING TRANSACTION CYCLES

The following are examples of how some common risk exposures in various accounting cycles can be controlled. Your accountant should review each transaction cycle to determine whether controls in that area are adequate.

RESOURCES:

Gene Brott, Esq.
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The greater your reliance on a small group of employees wearing multiple hats, the more you need to be in control of cash transactions.

The Revenue Cycle:
Computer fed documents related to sales, shipping, and cash receipts, such as sales invoices, should be pre-numbered.

Generate batch totals so that the total of cash receipts is compared with the total on bank deposit slips.

Print transaction listings regularly, and retain them, in order to preserve an audit trail. With some software, you can "lock out" further processing from proceeding until these reports have been printed.

On a strict schedule, invoice customers for outstanding balances.

The Expenditures Cycle:
Review transactions to confirm that requisitioned items are ordered, that all orders are actually received, and that all goods which are received are accounted for as inventory or otherwise. Establish purchasing policies requiring competitive and independent ordering of goods and services.

Inventory Management Cycle:
Use passwords to maintain and access inventory or production related files.

Install a remote printer in the warehouse. Transfer goods only with accompanying packing lists or stock request lists.

Physical inventory should be taken periodically and confirmed to computer-generated perpetual inventory records.

SECURITY STARTS AT HOME

Of course, the first place to start in eliminating employee dishonesty is to hire people with integrity, and check their background. Create a working environment that encourages people to keep their integrity. Instead of relying completely on "the stick," maintain an environment where people believe they are being fairly treated. By the way, in every embezzlement case I've worked on, the perpetrator was seriously underpaid.

If you do suspect theft, contact your legal advisor first—don't play detective. Gene Brott, an Oakland attorney formerly with the Alameda County District Attorney's office and a veteran of embezzlement cases, explains, "There are specialized procedures and many legal technicalities for investigating theft. A business owner who proceeds without legal advice may fall into many traps for the unwary. As a result, he or she may injure the business, jeopardize the police case, and even get sued or blackmailed by the embezzler for invasion of privacy," among other things. ■

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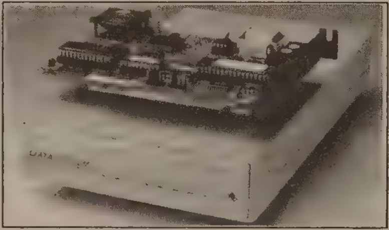

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If you don't think that this computer is the greatest thing since sliced toast you can bring it back for a full refund without a restocking fee. Complete details of our generous refund and exchange policy are printed on every invoice.

Same Day Repair Service
We expect you'll never have a problem with your Uncle Ralph's computer, but if you do, we'll fix it the same day (or by the next morning if you bring it in late in the day), or we'll give you a loaner.

Lifetime Warranty on Labor

Why Our Motherboard Is Better

The motherboard is the heart of every computer system, and this may be the finest one ever designed. It has a true 50MHz CPU that's designed to be upgraded to 66 or 100 MHz.

Easily Upgraded When Faster CPU's are Available
This system is a rocket by today's standards, and it will be a rocket by tomorrow's standards too because it's already designed to accept Intel's next generation of super high speed 486 CPU's.

256k Static RAM Cache Expandable to 512k
A machine that's this fast needs a big cache of fast SRAM to maximize performance and eliminate "wait-states". We use 256k of superfast 15ns SRAM while others use smaller caches of slower 25ns SRAM.

Full Surface Mount Technology
Surface mount technology eliminates the most common causes of motherboard failure by pressing chips into place instead of just soldering them. It's an expensive construction technique that's worth the investment if you can't afford downtime.

6 Layer Motherboard with Wide Circuit Traces
Our motherboard runs cooler, dissipates heat faster, and is more reliable than boards that use fewer layers or thinner circuit traces. This is especially important with today's hot running 50MHz CPU.

OPTI Chipset
We use the OPTI Chipset, knowing that OPTI has been the first choice of high end motherboard designers for years.

AMI Flex BIOS
The AMI Flex BIOS can be upgraded with floppy disks so you can keep your computer compatible with technologies that haven't even been invented yet.

Dallas Smart Clock/Battery
Most computer batteries have a short life and cause your computer to lose a lot of time. Our smart clock/battery won't need replacement for at least five years and is super accurate.

Uncle Ralph's Credit
- Low Monthly Payments
- Approval Usually within Minutes

Subject to lender approval. Monthly payments subject to interest surcharge. Minimum monthly payment per account is $20. Down payment may be required. Interest payments based on 24 months O.A.C. Based on 21% A.P.R

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(510) 841-5280
FAX NUMBER: 841-4743
Open 7 days: M-F 10-8, Sat 10-7, Sun 11-6
Items limited to stock on-hand & subject to prior sale.
Ad expires 8-18-92. © Uncle Ralph's, 1992

Uncle Ralph's

Uncle Ralph's

Good Questions to Ask Before You Buy a Computer...

Is the system FCC B Certified so you don't have to worry about interfering with your neighbors' TV and radio reception?

How long will you have to wait if your computer needs service? Will you have to wait for parts?

Is the system you want to purchase available immediately or will you have to wait for it to be assembled?

If a deposit is required, is it refundable?

Is the store's satisfaction and refund policy in writing? Is there a restocking fee?

Are you getting legal copies of DOS and Windows, or is there an extra charge for manuals?

Is there an extra charge for features which most stores include free?

Is there an extra charge for credit card purchases?

Monitors

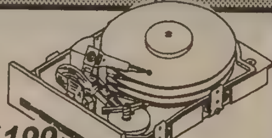
Packard Bell VGA
Monitor, 640 x 480
Resolution
$199

Touch Super VGA
1024 x 768 Resolution,
28 Dot Pitch
$299

Touch 17" Monitor
Great for Desktop
Publishing and design
$999

Packard Bell Non-Interlaced Low Radiation Super VGA
1024 x 768
$369

Hard Drives



Seagate 40MB	$199
Maxtor 130 MB	$319
Maxtor 213 MB	$499
Maxtor 535 MB (12ms)	$1199

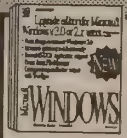
Mice

Microsoft Compatible 3 Button Mouse	$19.69
PCA Joystick	$24.69
PCA Trackball	$49.69
Logitec MouseMan	$79.69

Fax/Modems

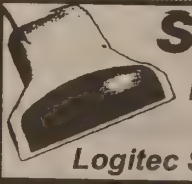
2400 Baud Modem	$47.69
AMS 24/96 Fax/Modem	$79.69
Practical Peripherals 2400 Baud Pocket Modem	$117.69
Digitan 24/96 Fax Modem WinFax Software included	$197.69
Supra 14.4 Data/Fax Modem	$347.69

Software



Windows 3.1 Upgrade	$39.69
WordPerfect 5.1 Windows Upgrad	$77.69
Stacker Hard Drive Doubler	$89.69

Scanners



Info Greyscale scanner	$99.69
Logitec ScanMan 256	$297.69

SoundBlaster Pro

with Midi Interface $197.69

386-SX Systems - Ready Today

386-SX25

- 40MB Hard Drive
- 1MB RAM
- Mono Monitor
- DOS & More

A complete desktop system, ready now and priced right. FCC B approved.

$797 $40 Month

Available TODAY

Includes Monitor & More

Includes Uncle Ralph's Lifetime Labor Warranty

386-SX33

- 40MB Hard Drive
- 2MB RAM
- VGA Color Monitor
- DOS & More

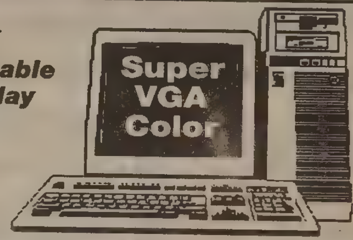
A super fast SX at a terrific price. Comes in a space saving case. FCC B approved.

$997 $50 Month

Available TODAY

386-40 $1397

Available Today



- 120 MB Hard Drive • 4MB RAM
- 64k Static RAM Cache
- Hi-Definition Super VGA Monitor
  - 1MB VGA Card • 2 Floppy Drives
  - MS Windows 3.1 • DOS 5.0
  - FCC Class B Certified

$70 Month

Includes Uncle Ralph's Lifetime Labor Warranty

About Uncle Ralph's Computers...

All of our computers include a written money back satisfaction guarantee. Except for special ordered parts, there are no restocking fees.

All of our systems are FCC Certified so you won't have to worry about interferring with your neighbor's reception.

All software includes manuals and can be registered for manufacturer's support.

Our 386 and 486 systems include a sharp .28 dot pitch SVGA monitor. Less expensive monitors are available.

All systems include keyboard, two serial, parallel and game ports.

Systems are usually available for immediate delivery.

There is no extra charge for credit card purchases.

If one of our computers needs service and we can't have it ready the same day, we'll give you a loaner (unless you bring it in really late in the day).

486-33 $1797 486-50 $2367

Super Systems at Super Prices

486-33

- 120 MB Hard Drive
- 4MB RAM
- 256k Static RAM Cache (512k max.)
- Hi-Definition Super VGA Monitor
- AMI User Upgradeable Bios
- 2 Floppy Drives
- 33Mhz Designed to Upgrade to 66Mhz
- 5 Year Dallas Smart Clock/Battery
- MS Windows 3.1 • DOS 5.0

Available Today $90 Month

486-50

- 213 MB Hard Drive
- 8MB RAM
- 256k Static RAM Cache (512k max.)
- Hi-Definition Super VGA Monitor
- 1MB VGA Card
- AMI User Upgradeable Bios • 2 Floppys
- 50Mhz Designed to Upgrade to 100Mhz
- 5 Year Dallas Smart Clock/Battery
- MS Windows 3.1 & DOS 5.0

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Includes Uncle Ralph's Lifetime Labor Warranty

"Uncle Ralph's Support & Service is the Best I've Seen"

-- Bernie Zilbergeld Computer Currents

Uncle Ralph's

10 Years of Excellence

TDK

Box of 10

MF 2DD	$5.99
MF 2HD	$9.99
M 2HD	$7.99

0% Financing Up to $2500

You can defer payment for 90 days and pay no interest at all. Or you can charge it to your Uncle Ralph's credit card account. Sometimes we even take cash! Credit subject to lender approval.

Same Day Repair Service, 7 Days a Week!

If you have a problem with one of our computers we can usually have it fixed while you wait. We have an excellent technical support staff that's dedicated to keeping you happy.

Lowest Prices... Guaranteed!

When you buy at Uncle Ralph's, you get our lowest price gaurantee. If you find it for less at another local dealer we'll match that price, now or up to 30 days after you buy! We'll even give you an extra 10% of the difference for your trouble.

Your Satisfaction Guaranteed

We do everything it takes to keep you happy. If you have equipment problems, or just need advice, we're here to help. And if you're not satisfied with your purchase, we have a 10 day refund/30 day exchange policy.

Quality-Tested by Fanatics

We pre-screen everything we sell for compatibility & reliability. We know how much you hate it when your equipment is in the shop and we want to keep you happy.

Helpful Advice...

Before you buy we'll take the time to help you choose what's right for you. We have an excellent selection and a knowledgable staff that make it easy for you to make the right decision.

Lifetime Labor Warranty on Uncle Ralph's Brand Computers

We design our computers to last forever. All parts on Uncle Ralph's Brand computers are covered for one year and our labor is guaranteed for life.

SUPER NOTEBOOKS!

Chaplet 386-SX25

- 60 MB Hard Drive
- 2 MB RAM

60 MB hard drive, VGA screen and weighs only 6.6 lbs. with battery. Includes MS-DOS, and external AC power adaptor.

$70 Month **$1397**

PACKARD BELL 386SX-25

America grew up listening to us. It still does.

intel inside

- 80 MB Hard Drive • 4 MB RAM
- Send Fax/Modem & WinFax
- VGA Screen • Only 6.9 lbs
- Windows • Lotus 1-2-3 & Lotus Write for Windows

$1997

$100 Month

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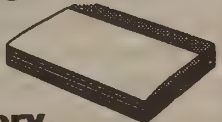
Portable Ink Jet Printer



Perfect Laptop Accessory.

Very small & lightweight ink jet printer that runs on battery or AC.

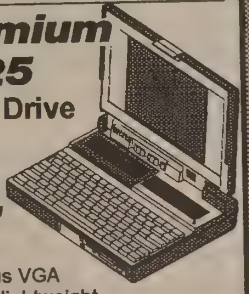
brother. **$297**

SHARP 386-SL20 Notebook

- 2 MB RAM
- 80 MB Hard Drive
- 16K Static RAM Cache
- Powersaving SL Chip • Built-In Trackball
- Only 4.9 Lbs.

$1997 $100 Month

AST Premium 386SX-25

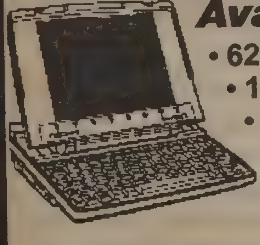


- 60 MB Hard Drive
- 4 MB RAM

For Only $125 Month **$2497**

With its 4 MB RAM expandable to 8 MB, plus VGA output, DOS 5.0, seriel & parallel ports, the lightweight AST is selling fast. In stock now and priced to sell.

Avanti 386SXL-25



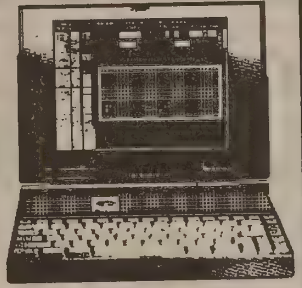
- 62 MB Hard Drive
- 10" VGA Screen
- 2 MB RAM • Fax Modem
- 3 Hour Battery
- Windows • Carrying Case & More!

$1997

$100 Month

Designed, Engineered and Manufactured in the USA

Twinhead Slimnote 486-33



- 130 MB Hard Drive
- 4MB Expandable RAM
- Built-In Trackball

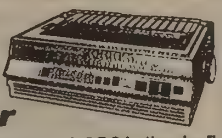
$2997 $150 Month

PRINTERS

Star 24 Pin Letter Quality Printer

$197

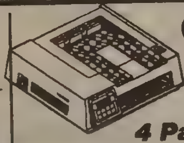
Panasonic Office Automation 24 Pin Letter Quality Printer



This proven workhorse prints up to 192 CPS in the draft mode and can produce beautiful text and graphics in the letter quality mode. It comes with a 2 year warranty, and has 5 built-in fonts.

$227

OKIDATA Laser Printer

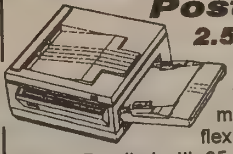


4 Page Per Minute

This 300 dot per inch laser printer has crisp blacks and publication quality output. HP Series II compatible, with standard typefaces/fonts and a slim, low-profile design. 5 Year Warranty

$627 $32 Month

EVEREX Postscript



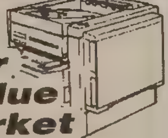
2.5 MB RAM

This printer is fast, with a 25 mhz processor, flexible and simple to use. Bundled with 35 Adobe compatible postscript fonts, 2.5 MB RAM, and prints at 6 pages per minute.

$1247

$62 Month

brother. Best Laser Printer Value on the Market



10 Pages Per Minute

Hot new printer takes up 50% less desktop space than HP LJIII, but it's 25% faster, has more fonts (36), better paper handling, PCL 5, and resolution enhancement.

$1297 $65 Month

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5 blocks south of U.C.
(510) 841-5280
FAX NUMBER: 841-4743
Open 7 days: M-F 10-8, Sat 10-7, Sun 11-6
Items limited to stock on-hand & subject to prior sale.
Ad expires 9-1-92. © Uncle Ralph's, 1992

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Your Uncle in the Business!

Uncle Ralph's Credit

- Low Monthly Payments
- Approval Usually within Minutes

Subject to lender approval. Monthly payments subject to interest surcharge. Minimum monthly payment per account is $20. Down payment may be required. Interest payments based on 24 months O.A.C. Based on 21% A.P.R

A Small Business Accounting Solution

QuickBooks Maintains A Non-Accountant's Perspective Of Financial Record Keeping But In A Format That Meets Business Needs

BY THOMAS SCHLEGEL

One of the surprising things about the PC revolution of the 1980s was the nonappearance of a dominant small-business accounting program. While 'everyone' came to use Lotus 1-2-3 for spreadsheet construction and WordPerfect for word processing, no clearly dominant or clearly satisfactory solution arose from a multitude of accounting programs.

At first glance this nonoccurrence would seem odd. Manual accounting systems were ripe for vast productivity increases available from computerization. Perhaps the key to understanding the lack of really good accounting software is one particular characteristic of the market itself—small businesses. The acceptance of the PC was spawned in the middle management ranks of large business—spreadsheet and word processing territory. Middle managers urged the development of planning and reporting tools, spreadsheets and word processors. Accounting, on the other hand, was handled by accounting departments and professional accountants often using mainframe computing solutions.

QuickBooks approaches bookeeping with the mind of a person trying to do business.

Arguably, the relatively large number of only mildly successful accounting packages arose when these accountants and data processing professionals saw the very real productivity gains available from PCs but then produced software that solved the accounting problem from their corporate/professional, accountant/mainframe point of view. These solutions have not been satisfactory to small-business people, many of whom hold their accountant next to their dentist among their least favorite professionals.

QuickBooks, recently released by Intuit, the publishers of Quicken personal money management software, may be the accounting tool that can become the dominant small-business accounting solution. There are a variety of features which recommend QuickBooks over other small-business accounting packages, but the thing that may make the difference with this piece of software is its heritage. QuickBooks is clearly an outgrowth of the Quicken series of checkbook managers, which are notably not written from an accounting point of view. QuickBooks has maintained a non-accountant's view of financial record keeping but in a format that fully meets business needs. In neither Quicken nor QuickBooks are debits and credits mentioned. (To be strictly correct there is a reference in the manual to the notations "debit" and "credit" found on bank statement and the need to understand what they mean in terms of balancing a checkbook). The impressive thing about QuickBooks is how the programmers at Intuit have made the jump from personal money management to small business management without losing this non-accountant's user's perspective.

QUICKBOOKS DEBITS & CREDITS

Anyone who has worked with Quicken will find QuickBooks familiar. The same check writing and check register format is used. Writing a check involves typing onto a form that looks just like a check out of a checkbook. In QuickBooks the same approach is taken to Accounts Payable and Receivable. Invoices are entered on a screen that looks much like a receipt pad that a business might keep at its sales counter.

Such simplicity of presentation should not be taken as evidence of a simplistic program. This is a full double-entry bookkeeping system with considerable sophistication in its features.

A new user installing QuickBooks will find as easy an installation as a DOS program can give. Printers listed as part of the setup routine include all the major brands of laser, dot-matrix, and PostScript printers, as well as generic options for custom setup. The printing requirements of the program are not great, so it is hard to imagine any but a most obscure printer setup causing problems. The program also supports multiple printer setup, so it is possible, for example, to set up one printer dedicated to invoice printing while using another printer for reports or checks.

Unlike Quicken, which comes in DOS, Mac, and Windows flavors, at the moment QuickBooks is straight DOS. It does come with a Windows 3.0 QB.PIF and a DESQview 386 QB-PIF.DVP files, making it ready to run as a DOS application in a DESQview or Windows DOS window. I have also ran it under DR DOS's TaskMax task switcher with no problems. It seems likely that this 1.0 version is well tested and a technically "well behaved" program that should not give a user any problems.

The setup routine gives the option of setting up with a selection of preestablished charts of account. The user who, at this point, is still deciding about how to categorize business activities—in other words, defining the chart of accounts—might want to set up several companies (the number of businesses you can set up is limited only by hard disk space) with different charts and look at them.

QuickBooks approaches bookkeeping with the mind of a person trying to do business. This is illustrated by naming most of the predefined charts of account setups by function, "Bank Account," "Utilities," "Inventory," and "Rent," rather than the bookkeepers traditional numeric system "1001" (for Bank Account), "6250" (for Utilities), and so on.

If tradition beckons, or if a business already has an established chart of accounts, QuickBooks can be set up with numbers. This works fine, but it adds a level of complication;

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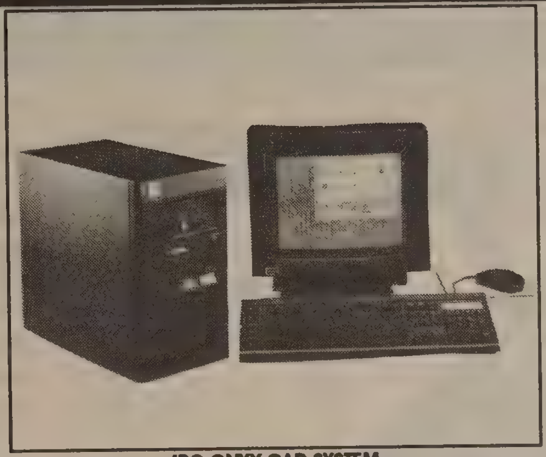
Systems For Tomorrow .... Diamond Quality Business Systems

IPC CAD SYSTEM



IPC ONYX CAD SYSTEM

IPC 486DX-50MHz W/256K Cache CAD System

- ☐ 4MB RAM Expandable to 32MB
- ☐ Dual floppies
- ☐ Bus Logic Bus Master SCSI controller
- ☐ Maxtor 200MB SCSI hard drive
- ☐ 2S/1P/1G
- ☐ Genoa 24-bit SVGA w/1MB, 16 million colors
- ☐ NI 14" SVGA monitor
- ☐ 101-key keyboard
- ☐ Medium tower case w/220W UL power supply
- ☐ Serial mouse
- ☐ FCC Class 'B'

$2589

Free:
- MS DOS 5.0 installed w/manual
- Windows 3.1, Excel, Word, Power point, Project working model installed w/manual

Options:
- Fax/Modem card

IPC 486DX-33MHz W/64K Cache CAD System

- ☐ 4MB RAM Expandable to 64MB
- ☐ Dual floppies
- ☐ 120MB hard drive
- ☐ 2S/1P/1G
- ☐ Genoa 24-bit SVGA w/1MB, 16 million colors
- ☐ NI 14" SVGA monitor
- ☐ 101-key keyboard
- ☐ Medium tower case w/220W UL power supply
- ☐ Internal 2400 bps data modem
- ☐ Serial mouse
- ☐ FCC Class 'B'

$1849

Free:
- MS DOS 5.0 installed w/manual
- Windows 3.1, Excel, Word, Power point, Project working model installed w/manual

Options:
- Bus Logi SCSI controller
- Maxtor 120MB/200MB SCSI hard drive

IPC 386DX-33/40MHz W/64K Cache CAD System

- ☐ 4MB RAM Expandable to 32MB
- ☐ Dual floppies
- ☐ 80MB hard drive
- ☐ 2S/1P/1G
- ☐ Genoa 24-bit SVGA w/1MB, 16 million colors
- ☐ NI 14" SVGA monitor
- ☐ 101-key keyboard
- ☐ Desktop case w/220W UL power supply
- ☐ Internal 2400 bps data modem
- ☐ Serial mouse
- ☐ FCC Class 'B'

$1449

Free:
- MS DOS 5.0 installed w/manual
- Windows 3.1, Excel, Word, Power point, Project working model installed w/manual

Black Systems Also Available-IPC ONYX Series

Patriot School & Home Computer Systems

486DX-33MHz w/64K Cache

- ☐ 4MB RAM
- ☐ 80MB HDD
- ☐ Mini tower case

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- ☐ 80MB HDD
- ☐ Desktop case

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386SX-25MHz

- ☐ 2MB RAM
- ☐ 40MB HDD
- ☐ Desktop case

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System including ...
- Motherboard w/Intel/AMD CPU
- Mini tower/desktop case w/200W PS
- 2MB/4MB RAM
- 2S/1P/1G
- 40MB/80MB IDE HDD
- 101-key keyboard
- Dual floppies
- VGA card
- VGA monitor
- DOS 5.0

CLEARANCE !!

cb 486DX-33MHz w/64K Cache

- ☐ 4MB RAM
- ☐ 80MB HDD
- ☐ Mini tower case

$1239

cb 386DX-33MHz w/64K Cache

- ☐ 2MB RAM
- ☐ 40MB HDD
- ☐ Desktop case

$832

cb 386DX-25MHz Non-Cache

- ☐ 2MB RAM
- ☐ 40MB HDD
- ☐ Desktop case

$829

System including ...
- Motherboard w/CPU
- Mini tower/desktop case w/200W Power Supply
- 2MB/4MB RAM
- 2S/1P/1G
- 40MB/80MB IDE HDD
- 101-key keyboard
- Dual floppies
- VGA card w/256K 800x600
- VGA monitor
- DOS 5.0

* Clearance items are with limited 3 months warranty only

Monitor Combos

Samtron SC-428TX 14" Non-Interlaced .28 Genoa 1MB SVGA 1024x768	$531
Samtron SC-428VS 14" 1024x768 .28 Trident SVGA 1MB	$330
Samtron SC-441V 14" VGA 640x480 .41 OAK 512K SVGA 1024x768	$267
Samtron SM-470 14" Paper White VGA OAK 256K VGA 800x600	$140

Communication Cards

PC Mate internal 2400 modem w/MNP	$36
PC Mate internal 2400 modem	$35
PC Mate standard 9600/2400 S/R fax/modem	$56
Zotrix 9600 internal modem	$36
Zotrix enhanced 96/24 s/r fax/modem	$96

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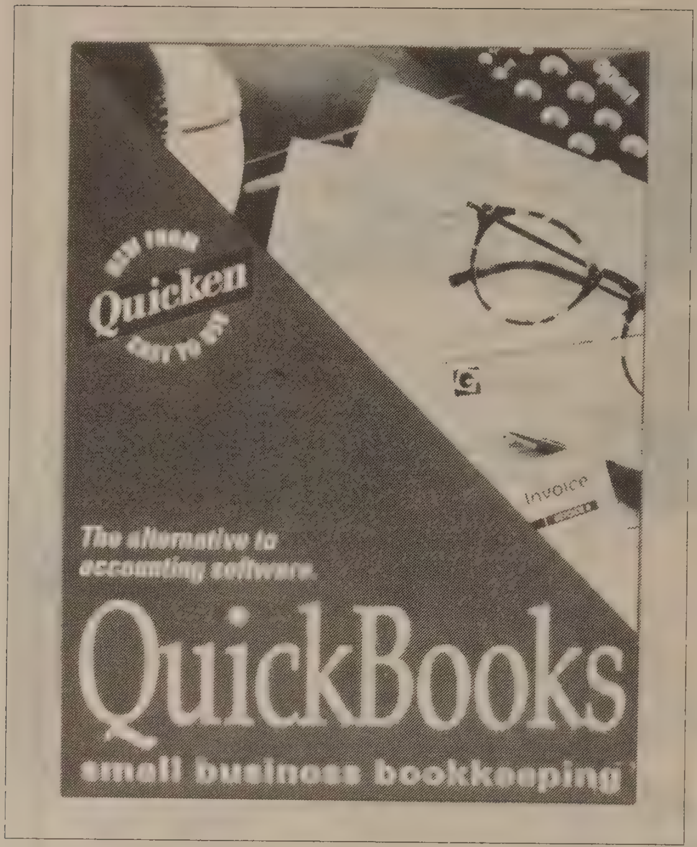
Sales: 510-651-6256 Fax: 510-651-1932
Tech Support: 510-651-6778 ext.23

Designed, engineered, built and tested in U.S.A.

Terms: 1 year warranty on parts and labor & lifetime technical support


NEW FROM
Quicken
EASY TO USE
invoice
The alternative to accounting software.
QuickBooks
small business bookkeeping

Simplicity of presentation should not be taken as evidence of a simplistic program. This is a full double-entry bookkeeping system with considerable sophistication in its features.

RESOURCES:

QuickBooks, $139.95
QuickBooks/QuickPay Bundle, $179.95
Intuit, Inc.
155 Linfield Ave.
PO Box 3014
Menlo Park, CA 94026
(415)322-0573

just the type of complication that encourages businesses to hire bookkeepers. (Bookkeepers being people who find it rewarding to keep track of the fact that "6250" equals "Utilities"). With a numbered system the automatic account look-up feature requires the user to remember and enter "625..." rather than "Util...". In this way, it is good that QuickBooks makes keeping track of accounts easy.

FULL-FEATURED BOOKKEEPING

Central to QuickBooks being seen as a business bookkeeping program is its implementations of full-fledged accounts receivable and accounts payable functions, making full or modified accrual accounting an option with this package. Both implementations are done well. As mentioned above, the accounts receivable transaction is built on a screen that looks very much like a paper invoice form. Behind the basic interface are options for different customizations, such as "Service," "Product," or "Professional" invoicing formats. Sales can be categorized by customer type, a credit limit can be maintained, and ship-to and bill-to addresses are supported. There are also fields for contact person and phone number. Once entered, invoices can be printed immediately or be stored for later batch printing.

QuickBooks does not have a full inventory system but it does maintain an inventory item list. This list allows quick entry of items on invoices. Using invoice data QuickBooks can generate a sales report with individual inventory item numbers and amount of sales.

The accounts payable feature uses the standard QuickBooks transaction format to enter a payable. In keeping with the non-accounting format, the accounts payable register has its transactions labeled "owed" and "paid," clear to anyone who maintains a pile of bills to be paid. As with accounts receivable there are a variety of options that can be used to set up a sophisticated payable management system. A nice feature is a notepad associated with each vendor where details of payables or payments can be entered. This notepad information can be referred to anytime the vendor is referenced.

Payment of accounts payable is integrated with the normal (non-accounts payable) check writing procedures. Checks on the same bank account can pay either an account payable or a regular expense. Individual payables can be paid with separate checks or payments for a number of bills from the same vendor can be combined in one payment.

REPORTING ON BUSINESS

Whether from the point of view of an accountant or a business person, printing reports of accounting transactions and associated information is important. QuickBooks does a commendable job in this area with a few notably convenient features. The only complaint I might have is that the reports are sometimes a little hard to find. For example the customer list report is found associated with the option to maintain the customer list rather than the reports menu. Logical enough once it has been found, but sometimes frustrating during the learning process when one finds oneself looking for a report you know is there but is not where you expect.

Once found, the reports are generally as useful as one could want. There are a variety of customization options on most reports. Some of these would be a nuisance to set up every time you did the report but fortunately there is a "memorize" feature. Once a report has been customized to the user's satisfaction it can be named and saved. The same report format can then be repeated just by picking the name off of a "memorized" reports list.

Another impressive feature of reporting is the way QuickBooks implements budgeting. Budget amounts are entered as part of a report. This means that, using the memorize and save feature, any number of budgets can be saved. For example a low, middle, and high budget for a year can be kept and regular reports done, comparing current actuals with all three options.

The departmental income and expense report has a feature that allows reporting on selected departments. Generally one has to go to much more costly accounting packages to get this ability to report on groups of departments. Combined with the memorized reports feature QuickBooks gives the option of easily reporting income statements a variety of ways. Thus a business with two locations and four departments at each location could have one set of reports that showed results by location and a second showing department totals.

The report printouts are generally readable and well organized but there are no graphing, charting, or layout functions available. However QuickBooks will print ASCII files to disk, which can be edited in a word processing or desktop publishing program. Alternatively QuickBooks will write .WKS files, allowing the user to manipulate the reports with Quattro, Lotus, or any other spreadsheet or database program that can read .WKS type files.

HELP MADE EASY

As would be expected from a company that has made a success of an individually oriented product like Quicken, Intuit under-

Continued on page 252

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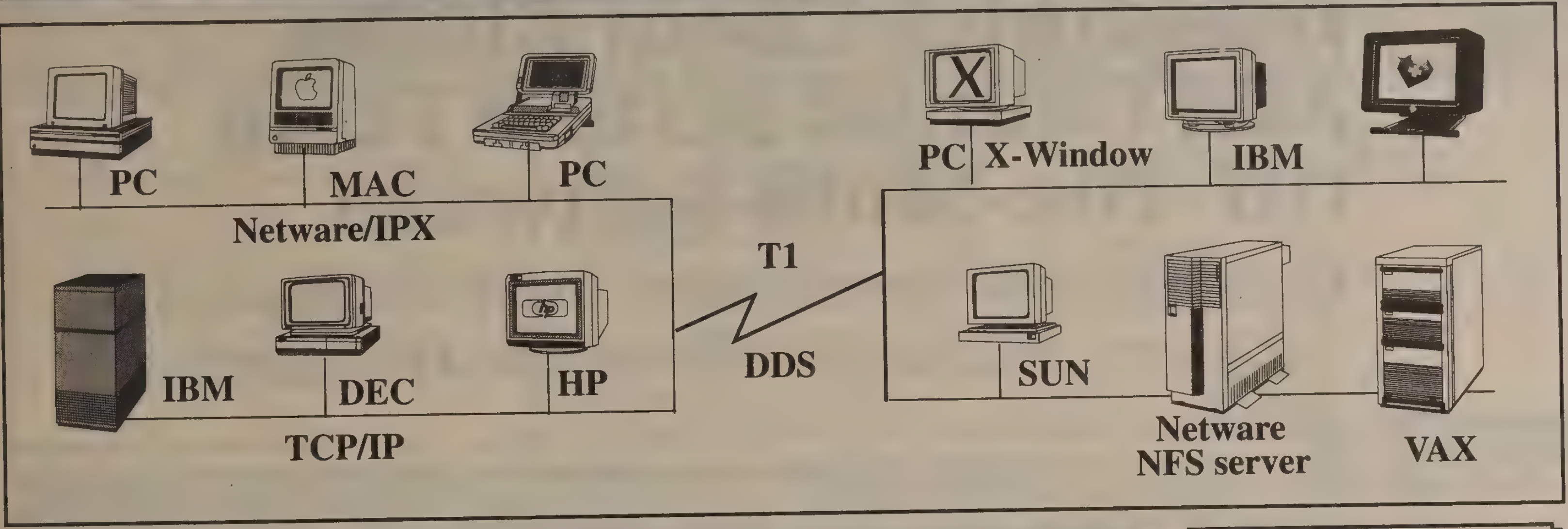

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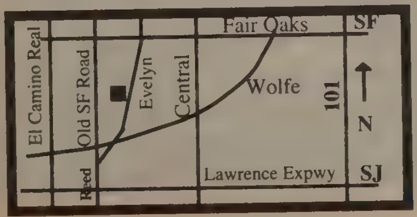

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Building A Client Billing And Contact System From Off-The-Shelf Software

Using Popular Spreadsheet And Word Processing Software Can Save You Money And Headaches

BY ROBERT MOSKOWITZ

If you need proof of the power inherent in your basic portfolio of software, you'll be interested to learn about a client billing and contact system built using ordinary off-the-shelf spreadsheet and word processing software.

The system was developed for a small photographic business where personal contact is vital not only for obtaining new work but for maximizing revenues from each and every contract, particularly by making additional sales to a client after the original contract is completed. Like most photographic businesses, this one is set up so families hire the company to send a photographer to a wedding, confirmation, bar mitzvah, or other family affair and later to deliver a completed photo album.

> *This system meets the company's needs with a minimum investment, a minimum risk of programming problems, and a maximum opportunity for continuing adjustments and improvements.*

After the affair, the company provides the client with hundreds of "proof" photographs. The family chooses some of these to be printed in finished form and mounted in the album, but can also purchase additional prints of other photographs, either to be included as part of the album or to be delivered separately.

To keep clients satisfied, the company routinely sends a series of letters: one after the initial sales call, one after the client signs the contract, one after the photographer does the camera work, and at least one after the client picks up the proof prints.

Aside from completing the original contract, the company likes to generate additional revenues by selling extra prints (whether or not they go into the album), and the complete set of proof prints from which the client selected the album photos. During the next one to five years, the company likes to sell extra prints of photos to replace or supplement the prints originally purchased. After five years, the company offers its clients the chance to buy the original photographic negatives from which all the prints were made. Since the pictures are already taken, the film already processed into negatives, and the proofs already printed, these additional sales work out to be almost entirely profit for the company.

The company encourages and promotes these additional sales by sending letters at specified intervals to clients suggesting these additional purchases.

All this record keeping and letter writing was done by hand until the computer system was established last year. The new computer also automates the company's record keeping, billing, and collections efforts, greatly reducing the number of hours per week that must be spent on these administrative tasks.

At first, the proprietor considered paying a programmer to create a custom software system to handle all this work. But the time required, the expense, and the relatively large chance of serious bugs and other problems were too daunting. In comparison, it seemed easier and more efficient to cobble together a system using off-the-shelf spreadsheet and word processing software. So far, that decision appears to have been correct because the system was installed and debugged in less than a month, and is still working perfectly.

The system centers around the spreadsheet. A block of rows and columns are set up with a "template" of billing labels and billing formulas that automatically calculate the quantities and prices of various photographic options: the contracted number of hours of photography, the number and sizes of prints for the album, the various options for album bindings and extras, various sizes of additional photographs, and so forth.

For example, a typical row in the template block reads across as follows: the first cell contains the label "5 x 7 prints," the second cell contains a "0," the third cell contains the formatted value "$11." The fourth cell contains the formula "28B*28C," which multiplies the second cell by the third cell. As soon as a quantity is entered in place of the "0" in the second cell, the fourth cell shows the total purchase amount for that line item, formatted to read in dollars and cents. Other rows are basically similar, but with different labels and different pricing factors in the third cell.

A summary formula toward the bottom of the block provides a "total purchase" for each client. The next row shows "amount paid." This value is generated by adding up the amounts listed in an adjacent column, each of which is entered individually as the client makes payments toward the total purchase amount. The final row contains a formula which subtracts the value in the "amount paid" cell from the value in the "total purchase" cell to show the "balance due."

Although the formulas that calculate purchase prices were originally set up with specific dollar values, as in our example, more recently they were changed to refer to a block of data entry cells near the top of the spreadsheet. Here, the company stores its overall cost and pricing information for each prod-

Continued on page 254

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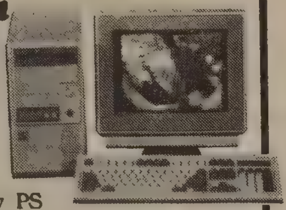

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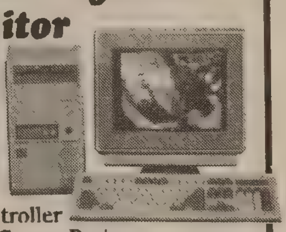

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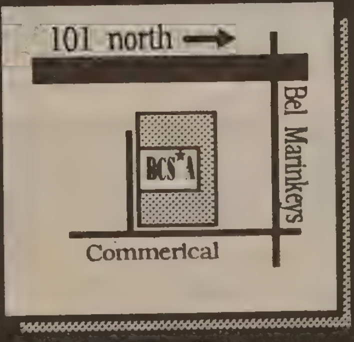

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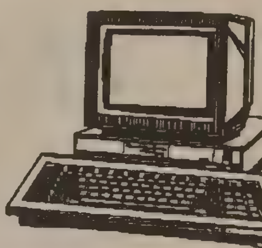

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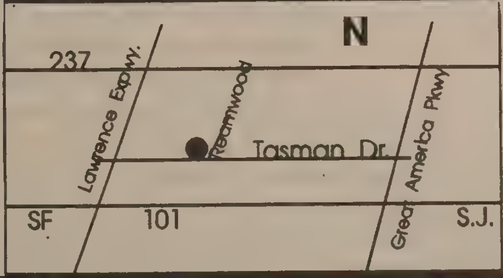
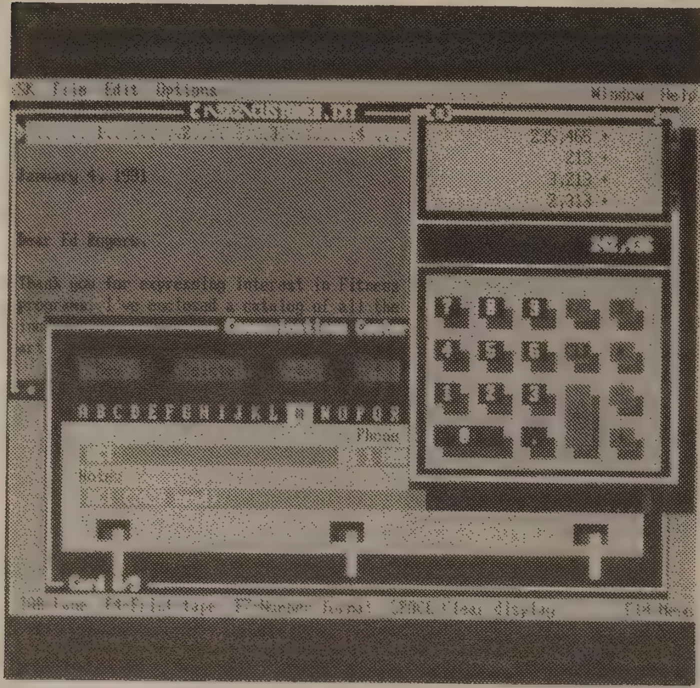


Getting Organized With Contact Management Software

Managing The Plethora Of Business Contacts And Records So You Can Get More Work Done



Sidekick 2.0 provides five interoperable applications—Time Planner, Address Book, Communications, Notepad, and Calculator—integrated under a windowing user interface with full mouse support.

BY ROBERT MOSKOWITZ

If your business contacts and relationships are few enough that you can keep them all straight in your head, you may not need special software to help you. But there's a good chance you are one of the millions of working people who have difficulty remembering everything about some of your contacts, or who must make a prodigious effort to keep track of the important facts, details, and histories of your ongoing business relationships—including from whom you heard something in particular, to whom you said something in particular, and when it happened (if it did). There is no need to despair. Thousands of overstressed, memory tired individuals have found relief in the form of special application software to which they can offload the chore of remembering the who, what, where, when, how, and why of business relationships, and as a result find their level of business success accelerating sharply.

The name of this special application is contact management software. It combines important functions from a word processor, a calendar/scheduling program, a communications package, and a database manager to provide the facilities for managing the myriad of details woven into the typical business day.

The center of a contact management package is generally a small database in which you can store your complete rolodex file. Once entered by keyboard or scanner, the information is available for retrieval at computer speeds. Dozens of times a day you can search it for the person or company you want, and then have the computer dial the telephone or print an envelope for you.

Good contact management software has a variety of other storage locations: a phone book with names and addresses, an appointment calendar, a database, a notebook and/or word processor, and more. By allowing all these modules to work together, the software makes it easy to store, search, and retrieve as much information as you need and want—everything from forms you can fill in to complete reference information or notes on people, projects, and events.

During your telephone conversations or meetings, you can refer to the notes stored in your contact manager files to jog your memory about your last discussion, and when you promised to do or deliver something for the person with whom you are talking.

As you cover new ground, you can add more notes to your files, and use the capabilities of the contact manager to make sure you act on every new commitment or responsibility. For example, the software can work automatically like a "tickler" file to call your attention to due dates, deadlines, appointments, and prearranged times for telephone calls to anyone in your database.

The center of a contact management package is generally a small database in which you can store your complete rolodex file. Dozens of times a day you can search it for the person or company you want, and then have the computer dial the telephone or print an envelope for you.

Connected to a printer, some contact management software can quickly and easily print customized versions of standard letters to new prospects, recent purchasers, catalog requesters, those you feel are about ready to reorder, or any other "class" of business contacts. It can print an appointment list for a day or a week, or a list of people you want to call and their phone numbers.

Many people who spend time away from an office are finding contact management software—loaded on a portable computer—to be priceless. They use it to record notes about every meeting, keep

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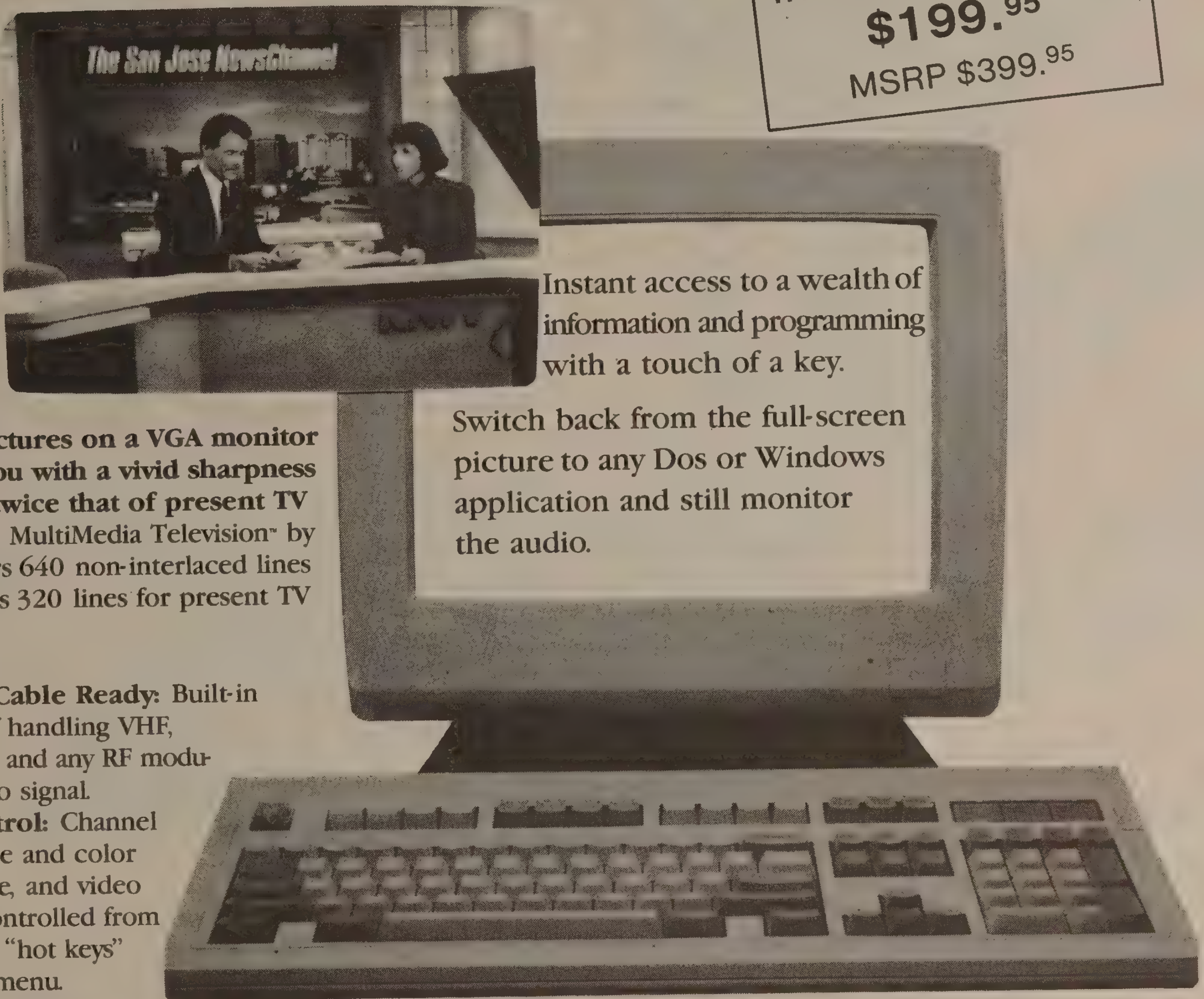

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Hackensack, NJ 07602
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track of appointments and ongoing business, and generate reports to the home office on each day's or week's activities. (If the contact management software doesn't have its own expense reporting module, you can add a spreadsheet to the computer and "do it yourself.")

In a sense, contact management software can act as an automated memory system to augment your overworked biological brain. As information comes across your desk, instead of writing it on the back of an envelope and balancing it on top of a pile on your desk, you file it away in your contact management software. Although it takes a few hours to get the basic rolodex and project information entered into the software when you start, keeping files up to date or adding new projects, people, and details as they come up generally takes only a few minutes. But having the information online lets you realize tremendous savings every time you want to or need to see it.

Contact managers form a broad product category containing many different types and styles of software. Before you rush out and buy a contact management package, therefore, you should recognize that there are at least seven kinds of software that can be used for contact management purposes.

Generalized contact managers, like Act and Maximizer, work very well for tracking and managing the many different types of information you accumulate concerning relationships built around complex and fast-moving projects or dynamic business ventures. They're designed to link this information to a single person, and to keep track of the latest status of sales efforts and other projects for which you're responsible. But many people feel uncomfortable with such specialized contact managers because they require an investment in building all new databases and learning commands and operational procedures.

More specialized "personal project managers," like Who-What-When and Primetime Personal, offer many of the same features as generalized contact managers. However, they tend to focus less on people than on particular projects. They're structured to store all information in relation to particular projects or tasks, and so feel more comfortable to people who think of their work day in these terms. Like generalized contact managers, they demand an investment in data input and training before they begin to pay off.

Outliners, like Grandview and Think Tank, work very well for storing and retrieving many bits and pieces of divergent but related information. Generally, outliners use hierarchical organization schemes to allow rapid movement of related material from one location to another, while retaining global search and edit capabilities. For example, an outliner lets you build a document reflecting a project, and take notes on each element of the project as it grows, evolves, fades and later reemerges in a new guise. You can reshuffle the project elements to reflect new priorities or organizational schemes much more easily than you could with word processing software, and even suppress display of the items you don't want to see at any given moment. If these outliners have a weakness, it's in math capabilities and the scheduling aspects of contact management. However, an outliner can be used for a wide variety of information management tasks, including word processing and mailing list maintenance.

Desktop organizers, like Sidekick and Metro, provide appointment planning as well as data storage capabilities. With these, you can store a great deal of information, and look it up whenever you need to. However, you may find it difficult to keep track of complex projects with this software because each appointment or item is basically separate from the others, and the software does not let you create links between data.

Text-only databases, like InfoSelect and Memory Mate, are good places to take notes while working on your computer. They provide a "pop up" notepad or "stack" into which you can put any ideas or information that comes to hand—generally without losing your place in your current application software. You can easily retrieve information from these stacks, too. If you work on several projects simultaneously, you can create multiple stacks, and—of course—each stack is available under whatever application software you happen to be running. However, this kind of software is oriented toward entering and retrieving text. There are no math or calendar functions, and no computer capabilities to help you analyze the information you've stored or to combine your data into more meaningful or insightful analyses or trend reports.

Thousands of overstressed, memory tired individuals have found relief in the form of special application software to which they can offload the chore of remembering the who, what, where, when, how, and why of business relationships, and as a result find their level of business success accelerating sharply.

Index/Archive software, like Zyindex or Ize, helps you find information you've already stored in word processing or other data files. These programs are designed to rapidly search dozens or hundreds of data files for a string of text you've specified. They can scan files originally created by a word processor, a database manager, or a spreadsheet application—all in a single pass. When they find your search string, they can display it, usually with a certain amount of surrounding data from the file. These are wonderful not only for finding information lost on your hard disk, but for referencing important facts and figures you've stored in a variety of files. You can do some contact management with this type of software by taking notes and recording other information within your main application software, then using this type of software to retrieve what you need while you're in meetings or on the telephone. Unfortunately, this forces you into a two-step process where you update or add new information by one means and retrieve it by another. Unless you have an advanced computer system switching frequently from one application to the other will quickly become tiresome.

Hypertext software, like Views and Houdini, allows rapid cross-reference jumps within relatively massive databases of reference information. This kind of software is unbeatable for flying along automated cross-reference links to nail down the exact information you want in a mass of data, such as a policy manual or a 500-page proposal. If the hypertext links are set up intelligently, you can find what you need to know while working from virtually any starting place or point of view. However, hypertext software is still relatively weak at facilities for updating or adding new information and cross-references to your database. Most of the programs allow some form of data entry and editing, but may not react as quickly as you would like to in a fast-paced business environment. The alternative—as with indexers and archivers—is to use the hypertext system for data retrieval and rely on a word processor or other package for data entry.

As you see, almost any package that can store and retrieve information can be used to simplify and smooth your day-to-day work with contact information, provided you feel comfortable enough to use it. The hardest part for many people is making the commitment to computerize the information on which you rely to get work accomplished and remain productive. ■

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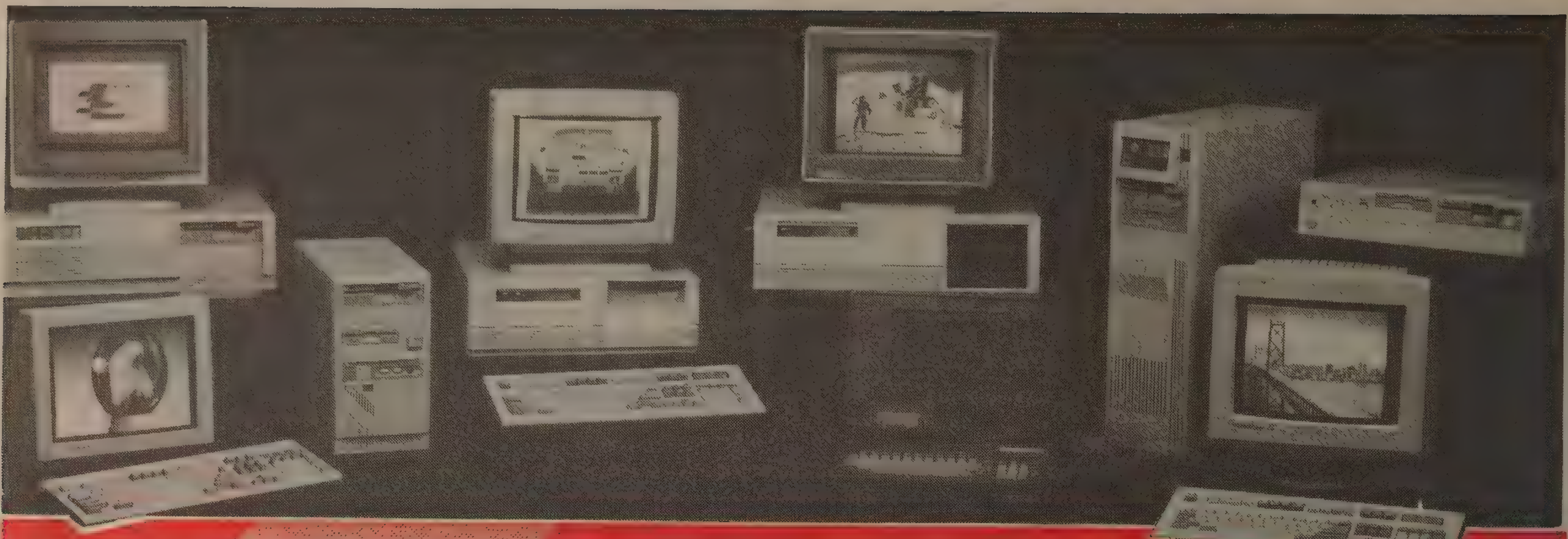

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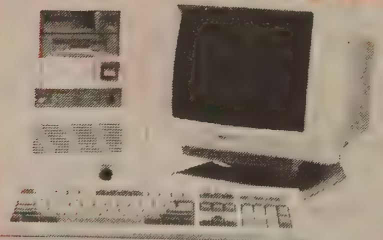

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Farallon Is Everywhere:

Report From Mactivity '92

BY YACCO

LOCAL AREA NETWORKS

With three new products to show, Farallon seemed to be everywhere at this little network show, held in Santa Clara last month. In addition to its announcements, the company had one of the more impressive booths, as well as a large presence in the conferences, an ongoing seminar in one of the meeting rooms, and the annual Farallon party the first evening.

So, if you attended the show, one thing you probably didn't miss was the $2990 Farallon Concentrator. It's a card cage for holding multiport repeaters and routers, and will ship by the end of the quarter—but don't be surprised if it's available sooner. Farallon's just waiting for UL approval.

Features include eleven slots that connect to either or both of two Ethernet buses. Its standard configuration of four LocalTalk buses can be increased to eight by simply changing a DIP switch. With a full complement of StarControllers, you can support as many as 240 LocalTalk ports, or 120 Ethernet ports (or combinations of both), in just under 1.5 cubic feet of space. The Concentrator also comes with a standard interface module, a power supply, and network-management software (Farallon's StarCommand)—optional, and expensive, accessories are available from most other vendors—that make it possible to configure a very cost-effective network for 10BaseT. It's the only solution of its kind for LocalTalk. The unit can be configured either rack mounted, free standing, or wall mounted (with optional brackets).

Farallon also introduced the InterRoute/5, 5-port (four LocalTalk, one Ethernet), AppleTalk router-gateway that connects EtherTalk to LocalTalk, and translates from both to TCP/IP. That makes it very easy to improve the performance of a large LocalTalk network by breaking it into segments. Furthermore, by putting the InterRoute/5 into the Farallon Concentrator, you automatically connect all four LocalTalk buses to one of the Ethernet buses. It's hard to screw up an installation that's so plug-and-play. Pricing and availability are expected fourth quarter. StarCommand v 3.1 will also ship at that time.

StarRouter was the third product Farallon introduced at the show. It's a router-hub that combines a 12-port LocalTalk StarController with a LocalTalk-to-Ethernet (via a thirteenth port) router-gateway that connects AppleTalk to TCP/IP. It's a single-box solution for connecting a Mac workgroup to an Ethernet backbone. The $3295 unit ships third quarter.

MACTIVITY FROM OTHER VENDORS

Despite the large amount of hoopla with the Reese Jones stamp on it, there were many announcements from other vendors this year.

The AG Group debuted a Token Ring network analyzer called TokenPeek, which will ship in the third quarter at $995. Like AG Group's EtherPeek and LocalPeek products, TokenPeek makes the most of the Mac's interface, but it will also capture and decode mixed-platform traffic.

The AG Group was also pitching Silver Cloud, its replacement for the Chooser, which had shipped just a few days earlier. The product's ability to handle large numbers of devices and zones through a hierarchy of zone folders is intended to simplify selection of network resources, such as printers and servers, on large, complex networks.

Empower Remote is a management tool from Magna that enables security administrators to set the security preferences for every networked Mac from a single location. The company says that physical inspections can be eliminated by Empower because it lets you remotely control changes to security configurations on nodes running Empower security products.

Also in the network-management vein, EclecTec announced netVANTAGE II, a new AppleTalk network design-and-performance-modeling product. EclecTec claims that the product, which requires no programming, makes network design and what-ifs more intuitive, helps you predict user-response performance, identifies bottlenecks and underutilized resources, and documents the network with presentation-quality graphics.

InterCon announced InterPrint, an LPR (UNIX) client that the company claims is a first for the Mac. It gives you the ability to use PostScript printers anywhere on your network.

MaCNet (a new incarnation of PC-side vendor CNet) was also there displaying new Ethernet cards. At $299, the firm's MACNET-SE-470 serves up ports for thick, thin, and twisted-pair Ethernet, for either the IIsi or SE/30. The MACNET-LC-480 model provides 10BaseT connectivity alone—but for the LC—at the same price. ■

Concentrator also comes with a standard interface module, a power supply, and network-management software.

RESOURCES:

EclecTec
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MaCNet
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SMC PC600WS 16-Bit Coax	141
SMC PC600FS 16-Bit Coax	216
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TIARA LANCARD/A Hiz Bus PC/AT	146/206

Ethernet

HTI Coax 16-Bit Ethernet Adapter	125
3COM 3C503-16 ETHERLINK II 16-bit	199
3COM 3C503-16 ETHERLINK II 5 Pack	738
3COM 3C523B ETHERLINK/MC	290
3COM 3C523B ETHERLINK/MC 5 Pack	1,263
3COM 3C507 16-BIT ETHERLINK	299
3COM 3C507 5 Pack, (1 Doc/Drivers)	1,345
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NOVELL/EAGLE NE2/2A 16-bit Micro Channel	271
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RACAL ES3210 32-Bit EISA	577

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AQUILA Pocket Arcnet Adapter	195
DLINK Pocket Ethernet Adapter BNC	250
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HTI Ext. 10 Base-T Adapter w/ Parallel Port	199
XIRCOM Pocket Arcnet Adapter TP	247
Pocket Arcnet Adapter COAX	267
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EAGLE 4-port Hublet Mini-Repeater	228
HTI 8-port 10 Base-T Concentrator	399
HTI 12-port 10 Base-T Concentrator	525
EXOS/MICRODYNE 16 port 10 Base-T Concentrator	660
INTEL Int. EtherExpress TPE Hub/ISA (12 ports)	565
INTEL Int. EtherExpress TPE Hub/EISA (12 ports)	639
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ARCserve VAP V4.0 (10 users)	511
ARCserve VAP V4.0 (any users)	879
ARCserve Solo	185
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InocuLAN NLM (20 Users)	312
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Menu for DOS-25 users	281
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LANtern Services Manager	3,629
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Selling SVR4.2

The New UNIX And The Revenge Of Marketing

BY BENNETT FALK

Marketing UNIX cannot be an easy thing to do.

The creators of the UNIX Operating System (Ken Thomson, Dennis Ritchie, Brian Kernighan, and others) seemed to be decidedly unaffected by the forces of the marketplace. They intended simply to build a "pleasant environment in which to write and use programs." (The authors of UNIX spoke with some eloquence about their intentions in the articles collected in *The Bell System Technical Journal*, July/August, 1978, Vol. 57, No. 6, Part 2.) They apparently didn't really care if it was sold to anyone else, and it must seem faintly ludicrous to them that the product of their labors could become a mass-market item along the lines of Pepsi, Bud Light, or Windows 3.0.

The strange thing is that marketing people are no less sensitive to this incongruity. Exactly which words does one use to entice the bulk of the market to buy UNIX? What sort of commodity is an operating system when it is sold independently of the all-important hardware it must run on? Who are the people who buy such a commodity, and what motivates them?

UNIX VISION: DAWN OF THE MARKETROIDS

Soon there will be a new UNIX, System V, Release 4.2 (SVR4.2), and the publication that arrived to explain it (a glossy quarterly called *UNIX Vision*) did not look anything like *The Bell System Technical Journal*. The smiling team of engineers on the cover, wearing teal shirts and clutching surfboards, looks nothing like Thomson, Ritchie, Kernighan, et al., and apparently the new UNIX will not look anything like its predecessors.

UNIX Vision is published by UNIX System Laboratories (USL), the organization in charge of the commercial and technical fates of UNIX. *UNIX Vision* does not pretend to be a technical publication; it is clearly a piece of marketing collateral. In it, the people who have the difficult job of marketing UNIX publish answers to the questions they hope are being asked by the people who will buy UNIX. Its readers may not learn much about UNIX from *UNIX Vision*, but they will learn who USL thinks should buy UNIX and why.

The smiling team of engineers on the cover, wearing teal shirts and clutching surfboards, looks nothing like Thomson, Ritchie, Kernighan, et al., and apparently the new UNIX will not look anything like its predecessors.

USL targets two markets explicitly for SVR4.2. The "enterprise market" consists of large companies who rely on applications that must cross the traditional boundaries between computer architectures: small machines must run substantially the same applications as large machines.

In the enterprise market, UNIX is attractive because it runs well in complex networks and because it runs on so many different kinds of computers. In the long run, enterprise customers will use UNIX to save money on hardware costs.

UNIX has traditionally been very appealing in the enterprise market, and SVR4.2 should be no exception. It will be widely ported to computer architectures that already have a strong installed base: DEC, HP, Intel, MIPS, Motorola, RS6000, and SPARC. In some cases these ports of SVR4.2 will compete with operating systems marketed by the hardware vendor. USL is taking great care to ensure that ports of UNIX to new platforms result in compatible versions, and that vendors who provide extensions to UNIX do not disturb the core product.

USL also makes a point of its participation in various standardization efforts, and this enhances its appeal to enterprise customers who cannot afford to have any segment of a complex business stranded by incompatible hardware or applications.

The second market into which USL will push SVR4.2 is the desktop market. The new version of UNIX is being touted as a superior alternative to Microsoft's Windows NT and IBM's OS/2 2.0 for the small, general purpose, single-user systems found in homes and businesses everywhere.

The appeal of SVR4.2 in the desktop market is that UNIX (in one version or another) has been available in this market for some time. Even though it is new, SVR4.2 can claim to be a known quantity in the desktop world; by comparison, Windows NT is unproven technology.

Success in the desktop market is also partly a matter of having well-developed channels to distribute software in very high volume; and to sell the Intel version of SVR4.2, USL has formed a joint venture (named Univel) with Novell that potentially makes UNIX available through Novell's robust distributor network.

A LITTLE PARADIGM SHIFT

Whatever the intrinsic appeal of UNIX to its targeted markets, the people who market UNIX also have to dispel a number of prejudices that have grown up since the early days at Bell Laboratories.

Thomson, Ritchie, and the rest set out to create a "pleasant environment" for themselves. The contemporary computer market, however, has different expectations for both ease of use and user interface from those that informed the original development of UNIX. It's widely believed, for instance, that UNIX has not integrated new user interface technology as well as it might, and that it is hard to use and administer.

USL is making a tremendous effort (some

Continued on page 256

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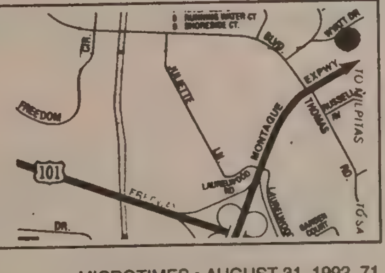

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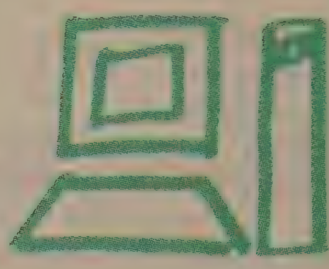

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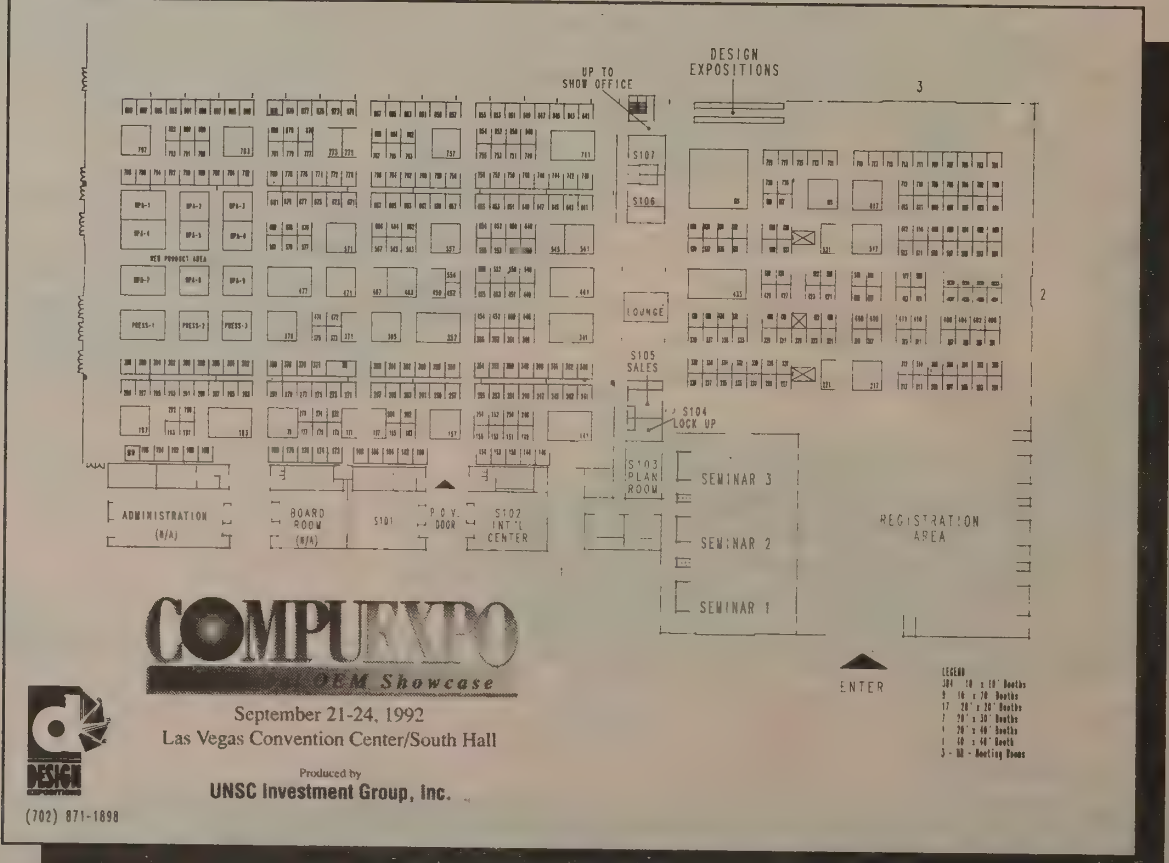
COMPUEXPO '92 SHOW SEMINAR PROGRAM

Monday, September 21

- **9:30–10:00 am**
  Keynote Speaker
  Gordon Campbell
  CEO, Chips & Technologies
- **10:30–11:30 am**
  Compatible PCs For The Next Ten Years: Non-Intel CPUs Come Of Age
  Product families: Chips & Technologies, Intel, Cyrix, AMD, Nexgen
  Chair: Joseph Bentzel, Leapfrog Marketing
- **1:30–2:30 pm**
  Marketing PCs In A Commodity/Price War Environment
  Chair: Johnathan Cohler, Computer Buying World
- **3:00–4:00 pm**
  Build Or Buy—Resellers Look At The New "OEM" Environment
  Chair: Tony Strattner, Reseller Management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Tuesday, September 22

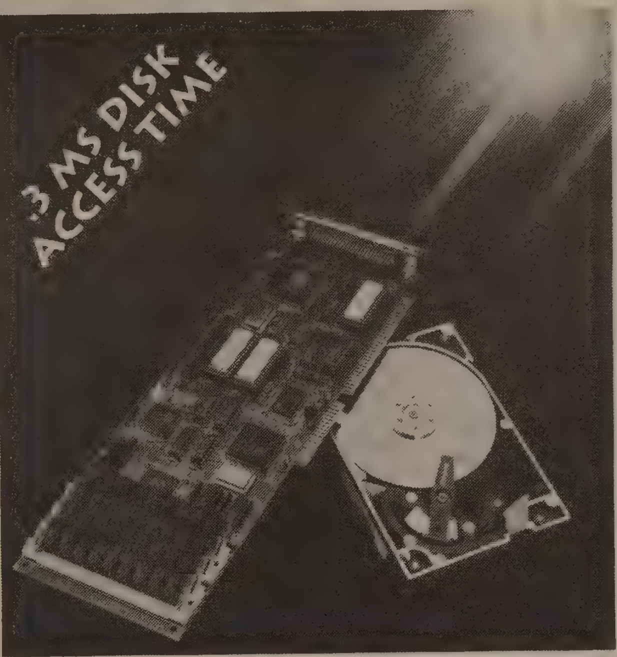
- **9:30–10:00 am**
  Keynote Speaker: Lucy Baney, Vice President, Software Systems Market Development, IBM
- **10:30–11:30 am**
  The Notebook Revolution
  ***Chair: Phil Lemmons,* PC World**
- **1:30–2:30 pm**
  Creating Company & Brand Identity In A Crowded Marketplace
  Chair: Brian Jaffe, Ziff-Davis
- **3:00–4:00 pm**
  Channel Strategies For Technology Entrepreneurs
  Chair: TBA

Wednesday, September 23

- **9:30–10:00 am**
  Keynote Speaker: Richard Fade, Director Of Far East OEM Sales, Microsoft
- **10:30–11:30 am**
  Beyond The Windows PC: Alternative Operating Environments
  ***Chair: Mary Eisenhart,* MicroTimes**
- **1:30–2:30 pm**
  Emerging Technologies For The Next Ten Years
  ***Chair: George Bond,* Computer Buying World**
- **3:00–4:00 pm**
  FCC Regulations And Compliance With Federal Agencies
  Chair: Michael A. Gbadebo, Rockford Engineering

Thursday, September 24

- **9:15–9:45 am**
  Keynote Speaker: TBA
- **10:00–10:30 am**
  Technology Trade And Marketing Between The USA And Hungary
  Speaker: Andy Hadju, Control Inc.
- **10:45–11:15 am**
  Technology Trade And Marketing Between The USA And Russia
  Speaker: Tamirlan I. Gasanov, Russian Chamber Of Businessmen
- **11:30 am–12:00 noon**
  Technology Trade And Marketing Between The USA And China
  Speaker: TBA



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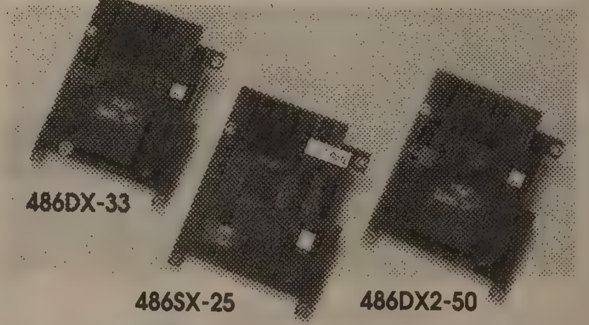

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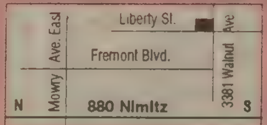

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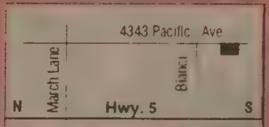

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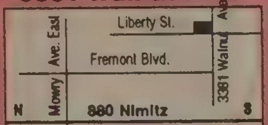

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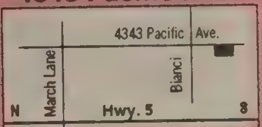

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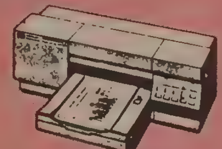

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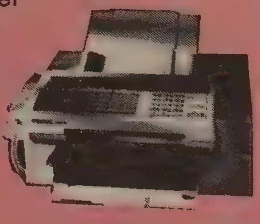

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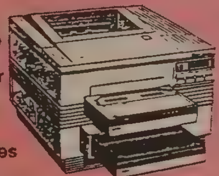

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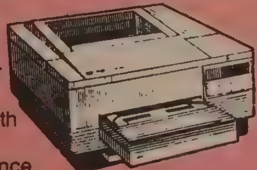

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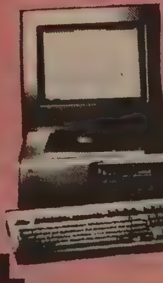

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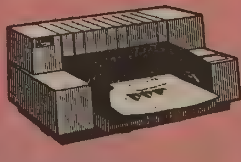

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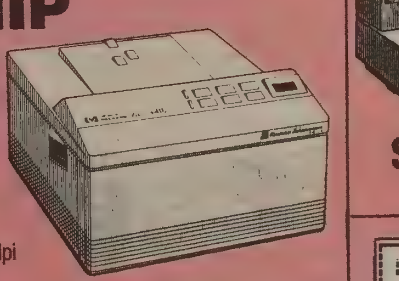

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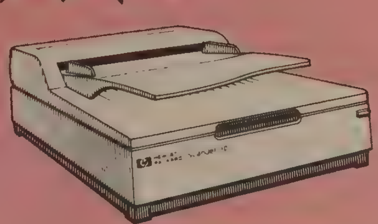

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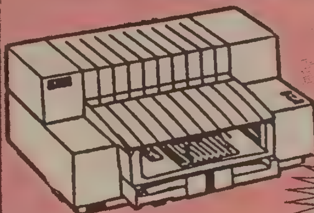

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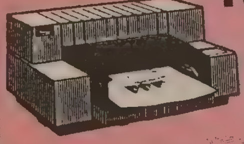

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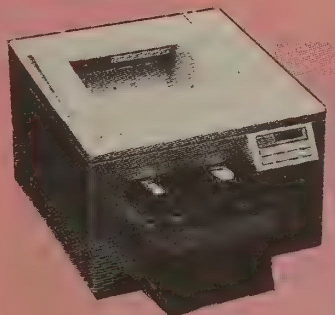

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GETTING AMERICA Online

An Interview With AOL President/CEO Steve Case

By Mary Eisenhart

Photos: Susana Millman

Founded in 1985 as Quantum Computer Services, America Online is, in some ways, a textbook example of the venture-capital-funded startup that makes good. Begun with a mixture of vision and pragmatism, it attracted such blue-ribbon investors as Hambrecht & Quist, Kleiner Perkins Caufield and Byers, and Citicorp. It differentiated itself from its competitors in key areas: a wide range of strategic alliances with partners including computer companies, software vendors, and print publishers; and massive investment in making the software easy to use for even the beginning computer user. Over a seven-year period it gradually developed into a successful national company and went public in a healthy stock offering in March.

Unlike its main competitors—CompuServe, a subsidiary of H & R Block; GEnie, a subsidiary of General Electric; and Prodigy, a joint venture of Sears and IBM—America Online has been an independent company from the beginning. Its success has been driven by its openness to outside partnerships and some aggressive marketing—whether you use a Mac or PC, the software and some initial connect time are free. If a prospective customer doesn't get the software through any of a number of bundling arrangements (with Tandy, IBM, and many other vendors), a phone call (1-800-827-6364) gets a disk and startup kit on their way.

Culturally, AOL walks some interesting lines. Its mass-market orientation causes it to have stricter rules for online conduct than you'll find on the Internet, say, but while there are system-wide policies against harassment and some of the more popular swear words in public areas, there is not Prodigy-style censorship. Last year, the system made headlines when it was discovered that some users were taking advantage of its sophisticated file transfer capability to distribute child pornography in electronic mail; President/CEO Steve Case issued a statement to the user base that struck a masterful balance among commitment to ECPA-mandated privacy, free speech, respect for customer sensibilities, and cooperation with law enforcement.

AOL is a serious business with plans for serious expansion. Its board of directors includes the likes of Kleiner Perkins partner Frank Caufield, Businessland president Harold Copperman, and former Secretary of State Alexander Haig. It is also home to nearly two hundred thousand users from children to grandparents (Seniornet, for example, recently migrated to AOL), who discuss topics including school, politics, software, pet care, sports, and rock 'n' roll. There's an area where Microsoft offers in-depth advice to small businesses, and a new service (a joint venture with the *Chicago Tribune*) called Chicago Online, where the locals and visitors discuss such topics as upcoming events and where to get the best Italian beef in town.

Steve Case was visiting the Bay Area in June, so, in a flurry of email, we arranged to meet and do this interview.

How did you happen to get involved in all this anyway?

I remember reading, I guess it must be twelve or thirteen years ago, Alvin Toffler's book *The Third Wave.* One of the concepts he developed was the concept of the global village, telecommunication bringing people together. And when I read it, I was

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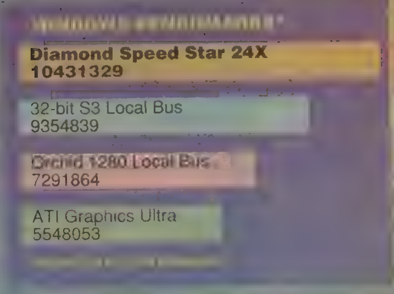

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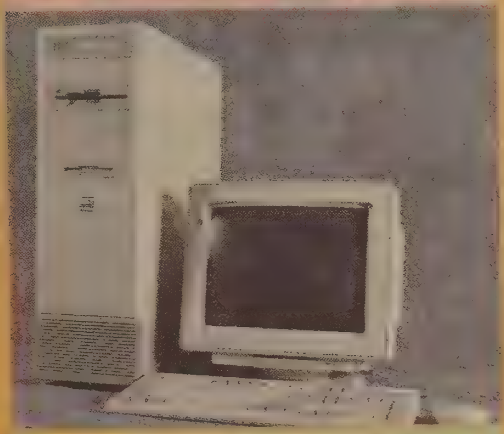

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struck by how powerful that concept, taken to its ultimate extreme, could be.

I was very intrigued by it, but then I kind of went on and focused on more pragmatic things—I worked for Procter and Gamble for a while, and Pepsico for a while, in the early '80s.

Ten years ago, I bought a Kaypro CP/M computer. I bought it mostly out of curiosity, because I wanted to get into computing. But I also wanted to try out this concept of communications.

What transpired was a series of very time-consuming, very costly, very painful steps to get hooked up. I figured out that you needed this thing called a modem, and I spent a couple hundred dollars to buy it, and waited a month for it to arrive by mail, and then learned that it didn't work with the computer I had. So I had to buy another modem. And then I needed to buy communication software to make that modem work with my computer, when I finally got that.

It was very complicated to figure out how to make it work. And I sort of reviewed the services out there, and decided to subscribe to The Source. I waited a month to get that—I think it cost a hundred dollars up front to get it, and quite a bit per hour to use it. I finally figured out how to make that work, and got in and wandered around.

And although it was very painful and very time-consuming and very expensive, I thought it was really kind of magical that I was sitting in my room, which at the time was in Kansas, and I could connect to this service that connected me to the rest of the world. As a marketer, I said that if there was some way to fix this, to make it accessible to real people and affordable to real people, this could be a major new medium.

We started the company in 1985 with the belief that the consumer online service market had a lot of potential if you could combine a very easy-to-use service with affordable pricing, and partner with companies who already had the awareness to market. In 1985, Commodore was the dominant home computer, so that was a good place to start.

That's how the company got started. We convinced Commodore that there was an opportunity here; they agreed to market the Q-Link service to their customer base, so they would bundle our software with all their computers, all their modems.

As a result, we were able to get some venture capitalists interested in investing in the company.

Even at that stage?

Well, we couldn't have started the company without their investment. The requirements to start a consumer online service and do it right are certainly such that you can't bootstrap it. It requires some capital up front.

The venture capitalists believed there was a market, and because Commodore was going to help market it, we could get customers relatively efficiently, and we were off to the races.

For the first several years of the company's life, the only market we served were Commodore 64 owners. Then we started diversifying with the Apple II market, and a service we did with Tandy for their DeskMate interface, and Macintosh and so forth. But we built the company, really, starting with a focus on Commodore.

Considering how much money has been bled on failed online systems, what did the VCs find attractive about this service, as contrasted to all the other ones that belly-upped over the years?

My sense is that they thought the market could be huge, and that there was a role for an independent company to try to provide a highly accessible, highly affordable consumer service, and to market that in partnership with companies, like Commodore originally, and more recently Tandy and IBM and Microsoft and Claris and the *Chicago Tribune* and a growing list of people we're working with to build this market.

I think the fact that we had a strategy of segmenting the market, of not trying to be all things to all people, and partnering with companies that already had credibility in some of those markets, so that we could leverage the momentum they already had as opposed to having to create it from scratch, made them more comfortable that this was the kind of investment they could make, that they would be able to get a good return on.

> **Steve Case: "Some people look at the online market and say, 'It's been around for five or ten years and there's only a few million users.' I look at it and say, 'I'm astonished that there's a few million users, given how many obstacles we as an industry have put in front of real people to get on.'"**

If we had proposed being kind of a mass-market service, and we were going to try to compete with Prodigy and *Time* magazine and HBO and so forth, spending tens of millions of dollars to build awareness, they probably wouldn't have been as comfortable. In fact, we were a little bit more pragmatic and a little bit more focused, and had this philosophy that really is part of our culture: that the way to build this medium is to do it collectively in partnership with other companies, as opposed to trying to go it alone. I think that probably made them feel good about the investment.

What's the state of your relationship with Commodore at this point?

We don't have too much relationship with them. That's mostly a function of how the market has evolved. We still provide the Q-Link service, and it's actually still quite profitable for us. We have thousands of customers who are still using it happily, and we'll continue to provide it, but obviously Commodore has not been selling the Commodore 64 computers for many years now; their focus has been on the Amiga. And we just made a strategic decision a few years ago that we were not going to provide a service for the Amiga. Not because it wasn't a good computer—it was, but we just felt the market opportunities were greater focusing on Macintosh and DOS and some of the other areas.

They've always been supportive—without their help, we could never have started the company. So we're certainly appreciative. They're focused more and more on Amiga and more and more on Europe, and we're focused on the consumer market in the United States, so over time we've moved in different directions.

You went public not too long ago. To what extent are your original investors still involved, and what doors got opened by going public?

Most of the original venture capital investors are still involved. I think they still believe that there's a long way to go in terms of meeting our ultimate objectives, and in most cases they want to hang in there for the ride.

The major change since we've been public is one of the reasons we decided to go public. We felt that since one of our core strategies was to establish alliances with a lot of different companies in a lot of different industries, by being public we'd be more visible and more credible.

That has happened. There have been a number of companies that have come out of the woodwork wanting to work with us, and some other companies that we had been talking to that are suddenly more enthusiastic about working with us, because we are more visible in the market, and they can understand the momentum we're making, and that we're going to be around for a while. So it's definitely been a beneficial process.

We also were pleasantly surprised that Wall Street, for the most part, understood what we were doing, and the market we were trying to develop, and really got excited about it. Since there had been so many failures in the consumer online services market in the 1980s, and a lot of publishers lost a lot of money, we were concerned, when we were headed down the path of going public, that Wall Street would just say, "Oh, here we go again."

And what we found was that a lot of things had changed, and the market had developed to the point where it was reasonably sized—according to Link Resources, already a $400 million market—and there's several million people using these services. So it's a reasonably sized credible market.

Yet at the same time, only 3% of households in the United States use these services, and 97% don't, so it's a big market with tremendous growth potential. I think they felt that the dynamics were now right in terms of the marketplace, and that we had a good strategy to participate in that marketplace.

When you say you want to "do it right," what does that mean to you?

It's a lot of things. When we first entered the market in the mid-'80s, almost all the services that were targeting consumers were too hard to use, and too

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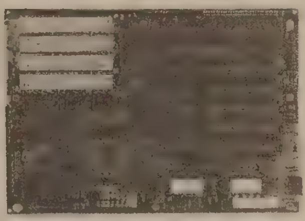

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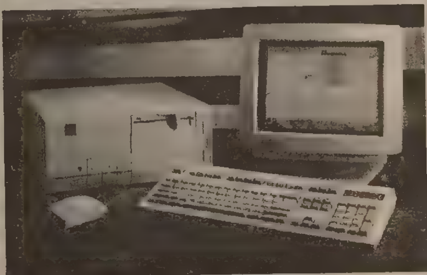

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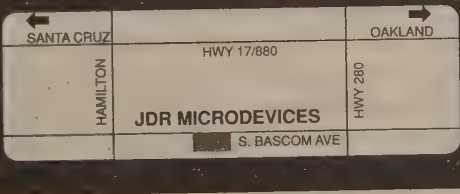

expensive, and not a very relevant mix of services for most consumers.

We said, "If we're going to break this open and have it be a broader medium, we've got to address those problems. It's got to be easy and fun to use, and it's got to have service content that real people find value in, and it's got to be something that people can afford."

So we made a significant investment up front in technology. We were the first company to offer a front-end software interface to our service, actually. Back in the mid-'80s, everything was ASCII text, very simple interfaces, so we spent a lot of money developing that technology. Now more and more people are also going in that direction, graphical user interfaces and so forth, but that's a key part of making online services accessible to the masses: making it something that is intuitive, that somebody could sit down in front of, and it won't take very long to figure out how to get in and get around.

What kind of services did you offer on Q-Link in the early days?

It was a pretty broad mix. The focus was on computing support—we knew that obviously people have a computer, they have an interest in computing, so that's an obvious first thing to target, in terms of forums to discuss different aspects of computing, and software libraries that you can download from and take better advantage of the computer you've got.

We also felt that in the Commodore market games were important, so we did a number of multiplayer games. Some ourselves, some with companies like Lucasfilm—we developed games with them to try and serve that kind of multiplayer gaming market with a nice graphical interface.

And we had what we called People Connection, which was this interactive communications capability where people all around the country could exchange ideas pretty much any time of the day.

There was also the usual slew of transactional services and information services and education services, but the focus was really much more on interactive communications. That's really always been our focus. We think the real magic of this new medium is the interactive communications capability. It's people participating in it, in sort of an electronic community, not reading the news off the screen. There's some value in things like news, but there's greater value in getting people to participate in more of an active medium, as opposed to just watching what's scrolling by.

Getting Seniornet was pretty much of a coup. How did you do that?

I think they had an interest in figuring out how to scale their service so they could support a larger base of customers. One of the problems they found was the same thing we saw when we first started the company, which was that in order to attract a broad base of customers, particularly people who tended to be novice computer users, it had to be very easy to use. I think they looked around and felt that our service was the best in terms of ease of use. We started having some discussions with them, and they decided that it made sense to join forces.

I think it was driven by our philosophy, in terms of focusing on the consumer market; the investments we've made to make the services easy to use and visually appealing were the kinds of things they felt were appropriate, in fact they *required,* if they were to track the broader base of seniors, many of whom are not too comfortable with computers. If they're going to participate, it's got to be simple and fun.

Commercially, where do you think the online business is going, and what are the obstacles keeping it from getting there?

The market trends are pretty clear and pretty encouraging. Most computers now sold in the consumer market have built-in modems, and three years ago none of them did, which was one of the major barriers. A few years ago, you had to buy a computer and figure out how to make that work, buy a modem and figure out how to plug it in and make that work, buy some communications software and figure out how to make that work, and subscribe to some service and figure out how that worked. Particularly since different services usually worked differently, it was very, very difficult.

> **"We think the real magic of this new medium is the interactive communications capability. It's people participating in it, in sort of an electronic community, not reading the news off the screen."**

If any two of them had the same command set, you'd fall down dead from the shock.

Absolutely. Some people look at the online market and say, "It's been around for five or ten years and there's only a few million users." I look at it and say, "I'm astonished that there's a few million users, given how many obstacles we as an industry have put in front of real people to get on."

So the first step, in terms of making it a mass medium, is accessibility. Making it easy to get in, easy to get around. To the extent that the computers or palmtops or screen-based telephones or what have you are designed so it's very simple to get into these services, that will be one of the major kinds of requirements to make it into a mass market.

And then it's having a set of services that are relevant to specific groups of people, so there's a reason to get in on a kind of habitual basis. We think that partners like the *Chicago Tribune* help provide that within their particular markets.

Why is the *Tribune* interested in this, and what's in it for them?

They clearly are viewed as the leading source of information in Chicago. In addition to owning the *Tribune,* they own one of the major radio stations, one of the major television stations, the Chicago Cubs... They really own Chicago, and are really respected in Chicago, and we think that by working with them we can really create some content for the Chicago market that will provide reasons for people to get in on a habitual basis.

And then we can marry that information with what we do pretty well, which is interactive communications capability, trying to create electronic communities, so that people in Chicago, instead of just reading the newspaper kind of passively, can interact with it, find out more information, discuss things with reporters, debate topics with fellow readers. It's that marriage of information and interactivity on a platform that is accessible and affordable that we think will really drive this into being a mass market.

How does the *Tribune* plan to deal with the interactive stuff? Somebody in one of the folders was saying, "Okay, when does Mike Royko get online so we can hassle him about his column?"

I think it'll vary. I think, like anything else, it'll take a while before it really develops. I don't know exactly what the status of Mike Royko is, but my guess is he's not the most computer-friendly guy in the world and probably would not be one of the first to get online to participate.

It'll probably be the junior reporters right out of college.

Yeah. What typically happens, whether you're working with a software company or a computer company or a magazine or a newspaper or what have you, is that very quickly there are a few evangelists who surface, who really believe in this and do what it takes to make it happen, in terms of building the interactivity and building the community.

I actually think the *Tribune* has been unusually creative in thinking about this new technology, and they fully understand the interactive communications side of it. They're not like some of the newspapers in the 1980s, just trying to throw up some news and position this as in any way a replacement for a traditional newspaper. It's a supplement to a newspaper, where you can get additional information, where you can interact and exchange ideas. It takes a newspaper one step further. I've been impressed with how quickly they've come to that realization.

Obviously our commitment is to build local editions in most of the major markets, in cooperation with, hopefully, the major newspapers in each of those markets. So what we're trying to do in Chicago is prove that the concept works, and then start rolling it out in other cities. We believe that we'll have partnerships with lots of newspapers and lots of markets, all working together to try to build this new medium.

One issue that arises is ads. We're a print publication; we live off of our ads. They're a print publication; they live off of their ads. Content is, essentially, subsidized by advertising. How do you see this

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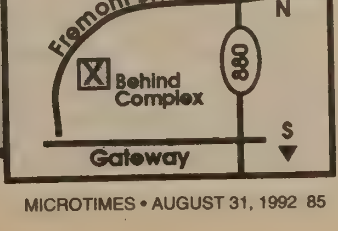

making a transition into the online universe? How is advertising going to kick in?

Well, it's unclear. I think the first step is building a critical mass. Nobody really is too interested in advertising unless there's a good reach in terms of the customer base. I'm not sure we're there yet.

To the extent that we have lots of people online, we probably will develop a number of different ways for advertisers to communicate with our members, but we'll do it in a manner that is consistent with the kind of atmosphere we've tried to create online.

Clearly there are a lot of people who like Prodigy, and they've obviously been very successful, but there a lot of people also who don't like the fact that there are these intrusive ads at the bottom of their screen. So we're less likely to go in that direction, perhaps more likely to go in the direction of asking people what their interests are. To the extent that there's somebody who wants to deliver a message to you based on those interests, maybe we'll provide a mechanism to do it. But it'll be more based on what you want to find out about, as opposed to being kind of intrusive.

But the bottom line is that it's not a high priority for us right now. Our focus is really on building the membership and working with a lot of partners to do that. To the extent that we're successful at building critical mass on a national scale, there should be some additional opportunities that we could pursue that would benefit customers as well. Obviously if we developed additional sources of revenue, that will allow us to be more aggressive in terms of how we price the service, because some of it will be paid for by somebody other than the customer. But you're not going to see anything from us in the next couple of years in the advertising camp. We'll let Prodigy experiment there.

So, for somebody like the *Tribune*, what is the economic advantage at this point in doing a venture like this? Foot in the door?

Well, I think it's more than that. Certainly there's a strategic imperative of trying to position themselves as being the primary source of information in their market, and embracing new technologies if those are ways to better deliver information to their customers.

Companies like the *Tribune* are looking at online services, they're looking at fax, they're looking at audiotext, as ways to provide information to their customers. That's number one—newspapers in just about every market have had flat circulation for the past couple decades.

What's essentially happened is that the younger people, sort of the computer generation, are the ones least likely to read newspapers. Which suggests that if you're running a newspaper, you'd better come up with some compelling ways to meet the information needs of those people, and you'd better be embracing some of the new technologies that those people are starting to embrace.

And of course it's pure strategic imperative. Any newspaper that sort of sits on the sidelines and believes that down the road they're going to deliver the newspaper as it's currently designed to people ten or twenty years from now is just being naive.

Beyond the strategic side, there is a financial reason to do it. The *Tribune* shares in the revenue generated by their customers; they get a greater share if they actually did the marketing to attract the customer. So they get some revenue based on the usage of their area, and they get some revenue based on the usage of the customers they generate. They did believe, and we believe, that down the road there may be some additional sources of revenue, such as through advertising. But the focus is on building the product, attracting the customer base, and then we'll look at some ways to improve the economics, whether it be through advertising or other kinds of opportunities.

Do you think newspapers as we know them will cease to exist, or will they exist as they are now and be a completely different universe from what's online?

They certainly will not cease to exist. New technologies rarely replace old technologies, they generally take them in new directions. Television didn't kill radio, it just redefined radio.

The same thing is true here. There is a fairly vigorous debate going on within the newspaper industry in terms of how to evolve the newspaper, but I think everybody acknowledges that some evolution is going to be required. We don't presume to know the newspaper industry well enough to know which is the right path, but certainly trying different approaches will lead to a better product than they currently have.

> **"New technologies rarely replace old technologies, they generally take them in new directions. Television didn't kill radio, it just redefined radio. The same thing is true here."**

One of the directions that more newspapers are pursuing is thinking of the newspaper as the summary, or the main menu, which will allow you to get more detailed information on topics you have a particular interest in through new technology. So you could find out, at sort of a top-line level, what's going on—if you really had a keen interest in a particular topic, then you could get more information, either online or through fax or audiotext or what have you.

With regard to Judge Green and the Baby Bells, do you think that the phone companies will get into this business over the proverbial dead bodies of the newspaper companies?

I certainly think the phone companies will get into this business. When they get into it, how they get into it, who they're partnering with, are the questions that nobody at this point really has the answers to.

Our belief is that the phone companies will move into this area with some caution, trying to figure out how to add value to the existing products out there, as opposed to starting from scratch, and they'll be looking for alliances with a variety of companies, including newspapers.

To the extent that they eventually play a role, it will be by facilitating development of the medium and by working with a lot of different partners, as opposed to trying to go off and do it themselves.

That said, I think there's enough uncertainty in terms of when and how they can play—there's obviously several bills in Congress now that are trying to restrict the phone companies' involvement. I think most of the phone companies right now have a wait-and-see attitude, wanting to see where this settles out before they make any major commitments.

So we don't see, in the next couple of years, any meaningful role in the marketplace for the phone-company kind of services, but down the road, if you look out five or ten years from now, we do think they will play a role.

Do you have an opinion as to whether it's a good thing or a bad thing for the phone companies to be in the content business as contrasted to the carrier business? Some people hold that there should be essentially a firewall between the two businesses, and have good solid arguments for that.

It's hard to say. We're certainly familiar with both the arguments. I think newspapers are going to be better at the content side than telephone companies, and telephone companies are going to be better at the transmission/conduit side than newspapers.

And even if people are able to do something, that doesn't mean that they can or will do it well. There are a lot of companies that are able to provide online services. In the 1980s, there were dozens of ventures that were started to do just that, and virtually all of them were not successful. It was mostly just a matter of trying to understand where their core competencies were, and in some cases they were in over their heads.

I don't think that telephone companies will be particularly adept at managing this interactive communications component of the service that we call online communities. That's something that I think a lot of the big companies, particularly the phone companies, view as a kind of anarchy. It's not something they can control, and it's troubling to them. They'd much rather have a situation where people are dialing in to get electronic Yellow Pages, or to get some news online from a very carefully edited and organized news service, as opposed to creating a platform for people to exchange ideas.

So my sense is that probably to the extent they get in at all, they'll focus on information services, perhaps even more a business focus than a consumer focus, and let other companies who focus on the communications side take the lead.

Going back to Prodigy, you've said that there is a significant overlap between your user base and the Prodigy user base, and that you advertise America Online on Prodigy. How do you differentiate what you do from what Prodigy does?

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It's a little bit like any medium—there's always an expectation among some observers that one size will fit all needs, and it almost never is the case. People subscribe to dozens of different magazines and watch dozens of different cable television channels. There's not this sort of winner-takes-all mentality in any media business.

And the reason for that seems pretty clear—nobody can meet the needs of everybody all the time, and it's better to focus on areas where you can add value. We think the area we're particularly good at is this interactive communications capability, creating these electronic communities, whether it be in partnership with newspapers or magazines, or with associations.

We think what Prodigy's been particularly effective at is creating a platform for direct marketing, and that's one of the key drivers of their business. That just is a different kind of business than what we're trying to do. They're much more interested in transactional services like home banking, and we don't provide those at all. We're interested in communications, so we provide capabilities like real-time conferencing, which they don't provide at all. It's just got a different flavor to it, a different personality, and some people will find value in one, some people will find value in the other, and a lot of people will find value in both.

One of the things that Prodigy has acquired a certain amount of notoriety for is that they're very stringent about what you can and can't post, and indeed your postings go through an editor before someone decides whether they go up or not.

This is not what happens on America Online, but on the other hand AOL has stronger online conduct policies than, say, The WELL or the net. What's the thinking behind all that?

Well, to some extent Prodigy, I think, has been unfairly attacked because of some of their policies. I think most of what happened is that the whole interactive communications area caught them by surprise. It was not part of their business plan; they were expecting this to be an information and transactional service. They threw up a few message boards just for the heck of it, they created an email facility just because somebody thought that might be nice, and suddenly people wanted to *use* it.

They really didn't have the functionality that probably was necessary, and they really had not thought through some of the policy issues that relate to interactive communications, and it just took them a while to wrestle with those issues. And they are complicated issues.

I think now, actually, their policies are a lot more reasonable than they were in the past. They are posting a lot more of the messages that before they would have censored.

We prefer having a more open system and trusting the judgment of our customers, so we do have a little bit different philosophy in terms of what is permissible than they have. I think they've made a lot of improvement in the last couple of years over when they originally started, and I give them a lot of credit for that.

And on the other hand, on America Online you can get your postings nuked for having one of the Seven Forbidden Words in them.

Everybody has their limits. We probably are the most tolerant of the major national services, but at the same time, if we're trying to create this into a mass medium, and attract millions of people, and we're going to do that by partnering with a lot of big companies, whether it be newspapers or magazines or computer companies or what have you, we don't think an anything-goes environment is appropriate. We think an open system that is quite tolerant is appropriate, but at some point you've got to draw the line. And that's what we do.

How do you balance the interests of people who want to discuss their sex lives with the fact that somebody's five-year-old is going to log on?

We just try to be reasonable. People have a tendency, because it's in an electronic medium, to think this somehow requires rethinking the way society should work.

And in most cases, the way society works works reasonably well. We're just trying to leverage some of those concepts and bring them into the electronic world.

Clearly community standards are what drives the judgment calls in most areas around the country, and that's the same kind of thing we try to do here. Trying, to the best of our abilities, to understand what the expectations of our members are, and try to have a policy that's reasonably consistent that reflects the desires of our customers.

To a large extent, these kinds of issues are a little bit overblown. The vast majority of the usage of our service, and other services like ours, is in areas where this is not an issue at all. It's really more the exceptions that get the attention. I think for the most part people think we're doing a pretty good job of moderating how the service works and being reasonably balanced in terms of the judgment calls we make. But nobody's perfect.

A while ago in the Grateful Dead area we had a situation where a passing flamer came along and used the f-word and had his response removed. It was interesting to compare the people in that group with their counterparts on The WELL. The people on The WELL would uniformly have raised holy hell whether they agreed with the response or not. Its removal would have been such a hot button that everything would have ground to a screeching halt until that was dealt with.

With this group, it was about half and half. There were a lot of people who said, "This is totally unacceptable and we can't have it." And there was a whole other group of people who said, "Later for this, where's the setlist?" It's interesting dealing with different customer bases, and how to tailor things to different customer bases.

Right, and that's one of the issues we wrestle with. America Online is not one big generic service, it's a lot of clusters of services. It consists of dozens of electronic communities, and each of them is a little bit different in terms of their requirements. What we're trying to do is recognize some of the differentiation among some of these communities, while at the same time having policies that are reasonably consistent.

It would be really confusing to people if something was tolerated one place and wasn't tolerated the other place. And on the other hand, you don't want to err on the side of having a policy that's sort of the lowest common denominator.

A system-wide K-12 standard...

No, we don't want that. We think that that's a little more of what Prodigy's trying to do, and we think that's fine for them, but it's not what we're trying to do.

We want a communication system that is tolerant of different viewpoints, that doesn't mind controversy—even if the controversy is about ourselves, which is often the case. We want to get people to be active participants, and we're willing to take the risks that some of that entails.

As time goes on, do you see things being available on the service like video and stuff like that? Not simply as downloads, but interactive video?

Sure. If you look down the road five years or so, certainly the communications infrastructure will be in place to support higher-bandwidth communications cost-effectively, and that will allow us to do some things that just aren't practical today to make the service even more visually rich and compelling.

That said, there's still an awful lot that can be done with the current technology. When you're looking at new emerging markets, people are always looking at the next thing as being the answer. And we think the answer lies within what's already on the table, with computers that exist today and modems that exist today, just trying to make it as accessible as we can and bring as many partners to the table as we can, providing content and helping to build awareness for America Online. We think that's the challenge of the next few years, to do a better job of leveraging what's already there, and not counting on some things that aren't yet built.

We continue to rely on desktop PCs as the way people access online services, and that's fine. The good news there is that more and more PCs are being sold in the home market, and more and more of those PCs have built-in modems. And many of them have our software, and Prodigy and other software, preinstalled on the hard drive, so it really becomes a matter of "take your computer home, plug one cord into the wall to get the power, the other cord into the wall to get the phone connection, and click something on the screen," and you're off and running.

So the barriers to trial have greatly diminished versus a few years ago, and that's great. And that market will continue to grow rapidly and be the principal driver for the online services market.

But beyond that, I think there's tremendous potential in terms of continuing to improve the accessibility and providing other ways for people to access services like America Online. We see the computer markets and the consumer electronics markets kind of converging, and beyond the desktop PC there seem to be three major new market segments that are on the verge of being developed. The first is palmtops, the second is interactive television, and the third is screen-based telephones.

We're looking at all of them. We think that palm-

Continued on page 260

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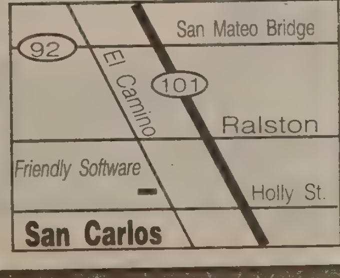

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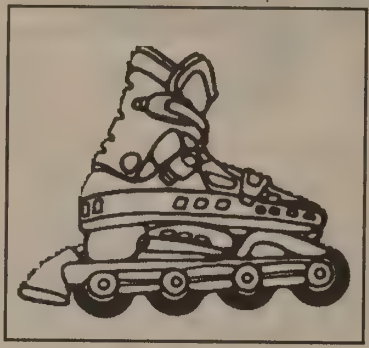

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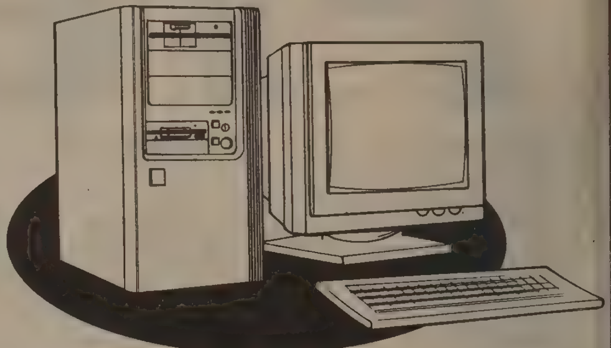

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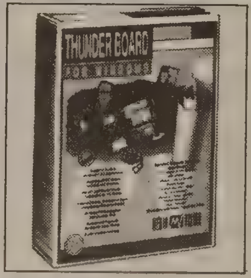

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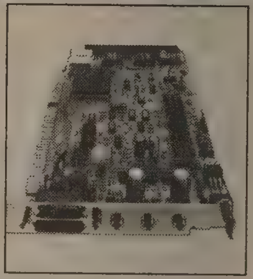

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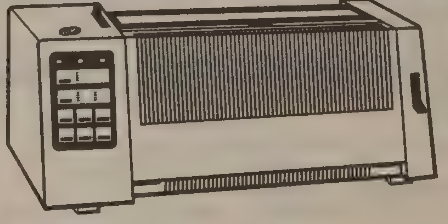

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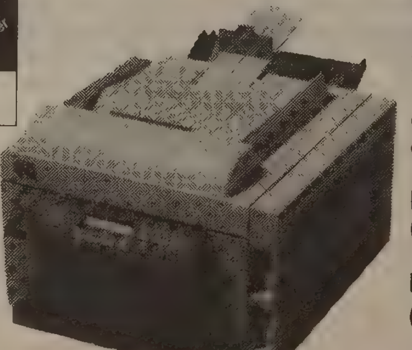

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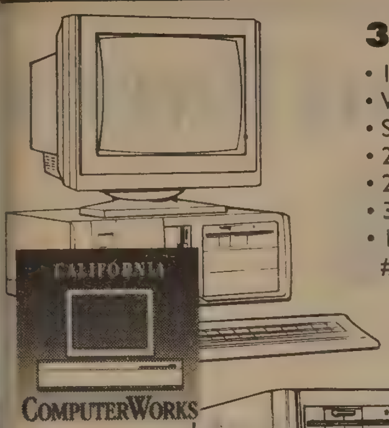

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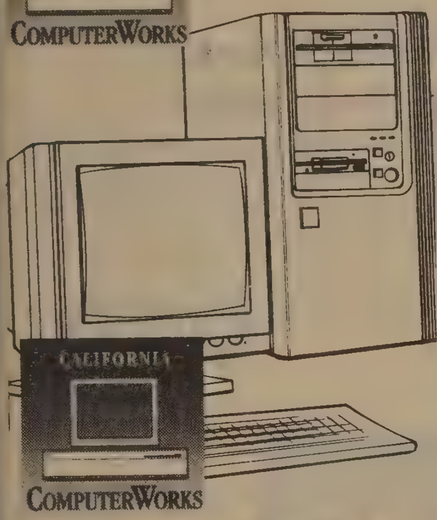

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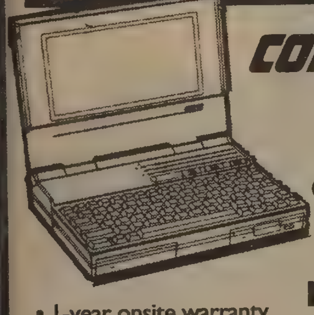

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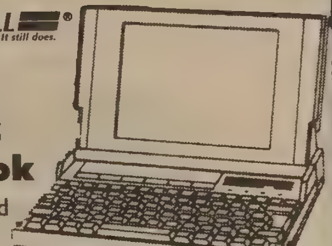

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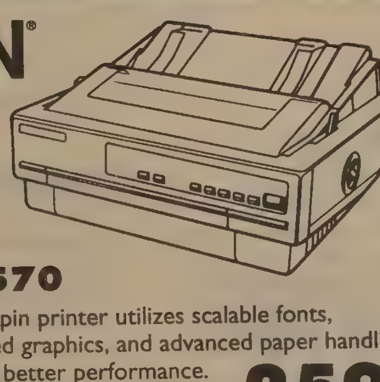

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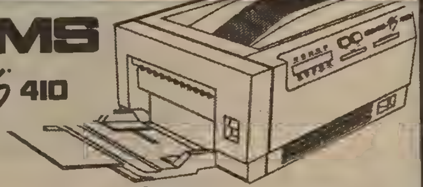

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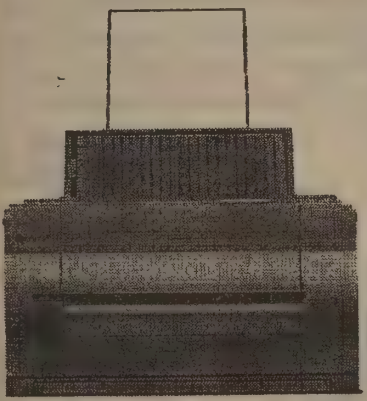

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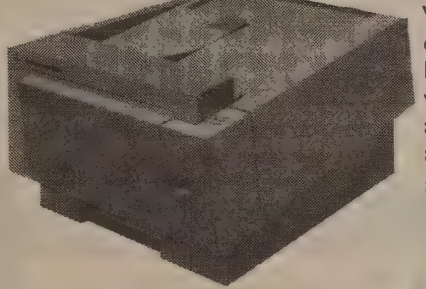

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Hours:
Sat-Wed: 10am-6pm Thurs & Fri: 10am-8pm

San Francisco
Hours:
Sat-Wed: 10am-6pm Thurs & Fri 10am-8pm

Concord
Hours:
Mon-Fri: 10am-6pm
Sat & Sun: 10am-6pm

San Mateo
Hours
Mon-Fri: 10am-9pm
Sat: 10am-6pm
Sun 11am-6pm

San Jose
Hours:
Mon-Fri: 10am-9pm
Sat & Sun: 10am-6pm

Sacramento
Hours:
Mon-Fri: 10am-9pm
Sat & Sun: 10am-6pm

september		1 Intro to Macintosh System 7 pt. I 7-9 pm	2 Lotus 1-2-3 For Windows 4:30-6:30 Intro to Excel on Windows 7 pm	3 Basic WordPerfect on DOS 7-9 pm	4 Inside the Laser Printer 7-9 pm	5
6 Intro to OS 2 12-1 pm Intro to Windows 3.1 1-3 pm	7 Toastmasters Part A 7-9 pm	8 Intro to Macintosh System 7 pt. 2 7-9 pm	9	10 Basic WordPerfect on DOS 7-9 pm	11 Intro to Microsoft Word for Windows 7-9 pm	12 Quatro Pro 4.0 12-2 pm
13 Intro to OS 2 12-1 pm Intro to Windows 3.1 1-3 pm	14 DOS Part A 7-9 pm	15 Intro to Macintosh System 7 pt. I 7-9 pm	16 Lotus 1-2-3 For Windows 4:30-6:30 Intro to Excel on Windows 7 pm	17 Basic WordPerfect on DOS 7-9 pm	18 Inside the Laser Printer 7-9 pm	19
20 Intro to OS 2 12-1 pm Intro to Windows 3.1 1-3 pm	21 DOS Part A 7-9 pm	22 Intro to Macintosh System 7 pt. 2 7-9 pm	23	24 Basic WordPerfect on DOS 7-9 pm	25 Intro to Microsoft Word for Windows 7-9 pm	26 Quatro Pro 4.0 12-2 pm
27 Intro to OS 2 12-1 pm Intro to Windows 3.1 1-3 pm	28 DOS Part A 7-9 pm	29 Intro to Macintosh System 7 pt. I 7-9 pm	30 Lotus 1-2-3 For Windows 4:30-6:30 Intro to Excel on Windows 7 pm		1992	

FREE CLASSES!

advanced registration required for all classes

networking classes available on request

•

ELECTRONICS

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

0% FINANCING
Zero% Financing 6 Months
FOR 6 MONTHS

5

Only One Place On Earth Keeps

THE ONLY PLACE ON Earth TO BUY COMPUTERS

Berkeley
2990 7th & Ashby
845-3000

San Rafael
863 E. Francisco Blvd
459-3533

San Francisco
401 Bayshore Blvd.
285-5244

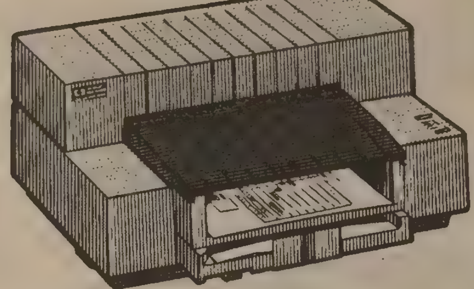
Concord
Willows Shpg Center
686-2270

San Mateo
Island Shopg Center
578-9200

San Jose
3530 Stevens Crk Blvd.
554-1500

Sacramento
3130 Arden Way
489-1000

HEWLETT PACKARD

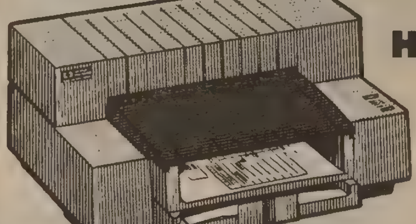


HP DeskWriter Printer

Get laser-like 300 dpi quality from your Apple® Macintosh® or AppleTalk® network, at a price lower than many dot-matrix printers. There's a good reason why these sell as fast as they come in.

$399.

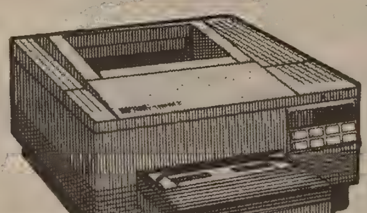
IF YOU'RE NOT SATISFIED FOR ANY REASON, PLEASE LET US KNOW.



HP DeskJet 500 Printer

Get laser-sharp printing from all your DOS and Windows applications at a dot-matrix price. This instant classic inkjet printer from HP works with TrueType or font-scaling software to give you perfect type at any size.

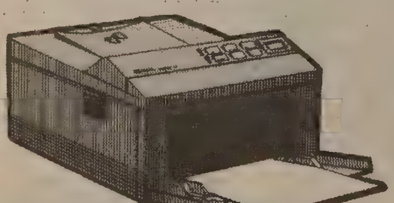
$399.



HP LaserJet III Printer

The industry standard in laser printers, the 8-page-per-minute LaserJet III offers snappy, dependable 300 dpi performance and reliable paper handling. Keeps up with the heaviest print loads.

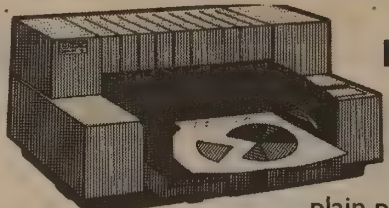
Limited quantity.



HP LaserJet IIIP Printer

Whole Earth makes the super-advanced but hard-to-get LaserJet IIIP available again. It's compact but powerful, with faster print speed than other printers in its price range, plus built-in type scaling and upgradeability to PostScript for PC and Macintosh.

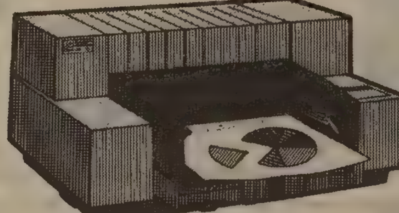
Limited quantity.



HP DeskJet 500C Printer

Get 300 dpi laser-quality color printing on plain paper and transparencies, for persuasive design and presentation power at a fraction of the cost of a color laser printer. Supports all major software including Windows; 3-year limited warranty.

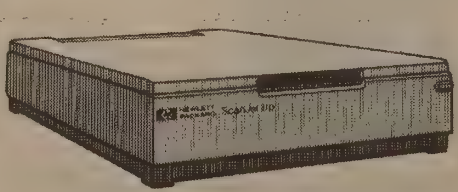
$629.



HP DeskWriter C Printer

The new HP DeskWriter C adds color capacity to the DeskWriter's already-famous laser-quality black output. It's compatible with popular Macintosh® software and your budget.

$629.



HP ScanJet IIP Scanner

Scan images at 300 dpi resolution, or scan text using OCR software and stop typing it in. Exceptionally easy to use; works with most popular scanner software packages.

Limited Availability

0% FINANCING
Zero% Financing 6 Months
FOR 6 MONTHS

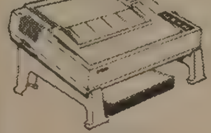
Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

WHOLE EARTH

You Coming Back for Deals.

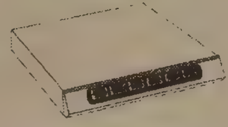
6

CURTIS



Universal Printer Legs
$5.95

System Connection



Power Control Center SP1000
$15.95

BASIC NEEDS

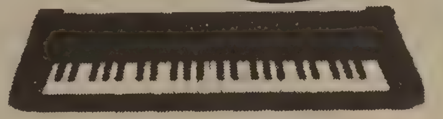
Utility Pack
$7.95

MicroComputer Accessories, Inc.
A RUBBERMAID COMPANY

Tilt & turn monitor stand
$13.95

THE SOFTWARE TOOLWORKS

NOW FOR MACINTOSH®



Software Toolworks
The Miracle Piano Teaching System

The first keyboard that teaches you how to play! • Pro keyboard with 49 large velocity-sensitive keys, 128 instruments and sounds • Full orchestral accompaniment • Flashcards, demo, video games, practice sessions, all designed to help you learn how to play piano.

MAC .... $429.
DOS............ $399.

INLAND

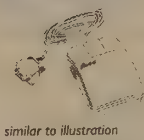
Surge Protector
$4.95

INLAND

3.5" BOX HOLDS 80 DISKS!

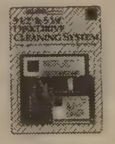
$4.95

System Connection



similar to illustration
Mouse w/software AC-ME01
$9.95

ALLSOP
Dual Disk Drive Cleaner CK.-50



$5.95

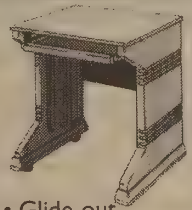
LB Innovators Wrist Rest

Protect yourself! A must-have for anyone with a keybaord.

$4.95

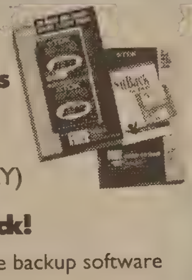
MicroComputer Accessories, Inc.
A RUBBERMAID COMPANY

Space-Efficient Workstation



A mobile, compact and self-contained computer desk for the home or office • Glide-out keyboard drawer with built-in wrist rest/storage compartmenty #1050 **$109.**

TDK HD "Super Electron Beam" Floppy Disks



79¢ per disk
(SOLD IN 20-PACKS ONLY)

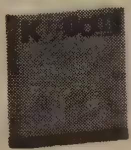
FREE with each 20-pack!
Sit-Back® for DOS Hassle-free backup software
$100 value

SOFTWARE

Prince of Persia from Broderbund
Animated game of the year, with Arabian Nights theme and endlessly challenging levels. **25.**

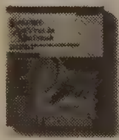
After Dark
Wacky animations or gorgeous changing patterns to fight screen burn-in and enhance your office. A must-have! **25.**

Kaboom
Scores of humorous digitized sounds to replace your Mac's regular beeps and event sounds. **25.**



Carmen San Diego (all editions)
All-time bestsellers with great sounds and graphics. Kids learn geography, history, and more as they track down the world's most insidious crook and her gang.
Excluding CD ROM version **35.**

SAM Anti-virus
Protect your computer from unwanted software guests. From Symantec, the leader in virus insurance. **59.**

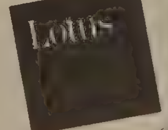


NEW! Microsoft Works 3.0 for Macintosh
The most popular Macintosh integrated program. Includes word processing, spreadsheet, telecommunications, database, plus enhanced design tools and graphics handling. **169.**

Microsoft Word
The best-selling word processor for the Macintosh and Windows is easier with drag-and-drop editing and built-in grammar checking.
Macintosh 289. Windows 299.

Microsoft Excel
Bill Gates ordered the Microsoft team to create the best spreadsheet ever. Now Whole Earth offers it at the best price ever.
Macintosh 299. Windows 329.

Lotus 1-2-3
It's easy to use, widely compatible, and full of flashy new features. Whole Earth makes it easy for you to bring your office into the 90s.
DOS 319. Windows 329.



Berkeley
Hours:
Sat-Wed: 10am-6pm Thurs & Fri 10am-8pm

San Rafael
Hours:
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San Francisco
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Concord
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San Mateo
Hours
Mon-Fri: 10am-9pm Sat: 10am-6pm Sun 11am-6pm

San Jose
Hours:
Mon-Fri: 10am-9pm Sat & Sun: 10am-6pm

Sacramento
Hours
Mon-Fri: 10am-9pm Sat & Sun: 10am-6pm

ELECTRONICS

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0% FINANCING
Zero% Financing 6 Months
FOR 6 MONTHS

California Resellers!

✦ Be a part of the MicroTimes 1992 Computer and Software Buyers' Guide

Maximize your sales and profits with the year-end issue of **MicroTimes**, on-street 12/9/91. This special issue is a year-round resource, featuring a comprehensive **Buyers' Guide and Reseller Directory** to make the most of your busiest selling season and bring you new customers in 1993. We invite you, as a reseller of computer products in California, to participate by completing and signing the attached **Reseller Poll** and mailing or faxing it to us no later than **October 1, 1992**.

✦ This Buyers' Guide Will Increase Your Sales

MicroTimes will showcase your store, your products, and your service. Here's your perfect opportunity to spotlight your store—tell your potential customers about the unique service your business offers, your in-house experts and the guidance they provide in such areas as LANs, Desktop Publishing, Systems Integrations, Accounting, and other specialties.

In addition to listing your store's name and other information alphabetically by geographical area, this year we're offering an additional feature to enable your prospective customers to find you quickly: **a separate directory of vendor-authorized sales, service, training and support providers.** So if you're authorized to provide these services for Novell, IBM, Apple, Sun, Hewlett-Packard, or other name-brand products, please give us that information so we include your name in the vendor-authorized listings.

✦ A Great Place For Your Advertising Message

The year-end issue of **MicroTimes** will bring customers into your store during your most important selling season and throughout the following year. They'll see your message next to an exciting lineup of editorial features, including our writers' picks for the best hardware and software products of 1992 and over 30 pages of Buyers' Guide announcing new products and special offers—many of which you'll already have in stock, ready to sell!

You'll also benefit from our own special promotions of this exciting issue which will appear in October and November. **MicroTimes** will help you build the consumer excitement you need to ring up sales as you ring in the New Year.

✦ Take Advantage Of This FREE Editorial Listing!

Complete the attached form and return it to **MicroTimes** before October 1, 1992. **If your store has more than one location, please use a separate form for each.**

And plan now to make the most of your selling season with the **MicroTimes 1992 Computer and Software Buyers' Guide!**

✦ For advertising information, call (510)934-3700 or (213)851-8600.

MicroTimes 1992
Computer and Software Buyers' Guide Reseller Poll

Mail to: Reseller Poll, 3470 Buskirk Ave., Pleasant Hill, CA 94523
Fax: (510)934-7351
Deadline: October 1, 1992

Store Name:____

Store Manager:______________________________________

Address:____

City:____________________ **State:**____ **ZIP:**____________

Phone:__________________ **Fax:**____________________

What applications does your business specialize in, and who are your in-house experts for each specialty? (List up to three):

Specialty	**Expert**

What operating systems does your business support?

MS-DOS__ AmigaDOS__ Windows__ Windows NT__ UNIX (specify variety)________
OS/2__ Macintosh__ Other (specify)__________

List the three top-selling brands sold at your store in 1991:

____

What special value-added services (e.g. service, training, support, warranties, return policy, etc.) does your business offer? (Please keep responses under 25 words or we will edit them to fit available space.)

____

____

____

Are you a vendor-authorized sales, service, training and/or support source?

If so, please list up to five vendors (e.g. Sun, Novell, Hewlett-Packard, Autodesk) who have authorized your business to provide these services, and check the areas for which you're authorized.

Vendor	**Sales**	**Service**	**Training**	**Support**

I certify that all the statements made in this survey are true.

Name:____________________ **Title:**__________________

Signature:__________________ **Date:**__________________

NEW LOWER PRICES!

MULTIMEDIA PC

Multimedia PC

486-33	386-40
$1935	$1645

W/CD-ROM, SOUND BLASTER PRO & STEREO SPEAKERS

SYSPER MULTIMEDIA Systems Include:

- 4 MB RAM/64K Cache
- 1.2 MB or 1.44 MB FDD
- 130 MB IDE HD
- SVGA Non-Int .28 Monitor
- SVGA 1 MB Card
- 101 Keyboard
- IDE Controller w/1S/1P/1G Ports
- Desktop Case w/230W PS
- High-Performance CD-ROM Drive
- Sound Blaster Pro Card
- MIDI Kit
- Microsoft's Windows Graphical Environment w/Windows 3.1
- Additional CD-ROM Titles
- Stereo Speakers

2 YEAR LABOR
1 YEAR PARTS **WARRANTY**

30 DAY MONEY BACK!

SYSPER 486 LOCAL BUS

486-33	486-50
$1345	$1595

WITH 32 BIT LOCAL BUS INTEGRATED IDE & ET 4000 HI-COLOR VIDEO CARD DRAMATICALLY IMPROVES DISK DATA ACCESS AND GRAPHIC SPEED!!

"LOCAL BUS" IS HERE

SYSPER LOCAL BUS Systems Include:

- SVGA Color Monitor
- 32 Bit IDE Controller
- 32 Bit ET 4000 Video Card
- 64K Cache on Board Exp to 256K
- 4 MB RAM Exp to 32 MB
- 1.2 MB or 1.44 MB FDD
- 130 MB Hard Disk w/64K Cache
- 1 Parallel/2 Serial/1 Game Ports
- 101.Key Keyboard
- 200 Watt Power Supply
- Baby AT or Mini Tower Case

SYSPER 486 ISA SERIES

W/130 MB HARD DISK & SUPER VGA COLOR MONITOR

BOTH DX & SX SERIES SYSTEMS INCLUDE:

- 4 MB RAM on Board
- 1.2 MB or 1.44 FDD
- 130 MB IDE Hard Disk
- 16-Bit VGA w/512K
- 14" 1024x768 Super VGA Monitor
- 1 Parallel/2 Serial/1 Game Port
- Desktop Baby or Mini Vertical Case
- Math Co-Processor Socket
- Clock/Calendar w/Battery Back-up

CACHE

SX25 W/64K	$1035
DX33 W/64K	$1255
DX2-50 W/64K	$1375
DX50 W/64K	$1515

SYSPER 386 SERIES

W/80 MB HARD DISK & SUPER VGA COLOR MONITOR

SX25	$765
SX33	$775
DX25	$815
DX33 W/64K CACHE	$835
DX40 W/64K CACHE	$845

BOTH DX & SX SERIES SYSTEMS INCLUDE:

- 1 MB RAM on Board
- 1.2 MB or 1.44 FDD
- 80 MB IDE Hard Disk
- 16-Bit VGA w/512K
- 14" 1024x768 Super VGA Monitor
- 1 Parallel/2 Serial/1 Game Port
- Desktop Baby or Mini Vertical Case
- Math Co-Processor Socket
- Clock/Calendar w/Battery Back-up

MONITORS

VIEWSONIC	
4E 14"	$295
5E 14"	399
6E 14"	335
6FS15"	CALL
V7 17"	1030
V8 20"	1540
MAG	
MX14H 14" .28dp	$495
MX14S 14" .26	575
MX15F 15" .28	615
MX17F 17" .26	1175
MX17S 17" .26	CALL
SAMSUNG	
SYNCMASTER 3N 14".31 72HZ	CALL
SYNCMASTER 3N 15".31 72HZ	495
SYNCMASTER 4+ 17".31 78HZ	CALL
SYNCMASTER 5C 17".26 78HZ	CALL
IDEK	
MF5115 15" .26	$695
MF5217 17" .28	975
MF5317 17" .28	1095
MF5121 21" .31	1775
MF5221A 21" .31	1955
MF5321A 21" .31	2095
MF5421A 21" .26	2354
NANAO	
9080I 16" .28	$925
F550I 17" .26	CALL
F5060I 17" .26	1875
9500 10" .31	1875
T660 20" .31	2425
F750I 21" .31	CALL

GRAPHIC CARDS

DIAMOND	
SPEEDSTAR 24 BIT 16M COLORS	$140
STEALTH 1 MB	229
ORCHID	
PRO IIs HI-COLOR	$145
FAHRENHEIT 1280	215
GENOA	
7900 24 BIT 16M COLORS	$175
8800 1 MB	225
8860 1 MBHI COLOR	235
NUMBER NINE	
GXI LITE LEVEL 21	$775
GXI LEVEL 23	1220
GXI LEVEL 24	1285
GXI LEVEL 25	1395
GXI LEVEL 29 24 BIT 16M COLORS	1695
ATI	
WONDER XL W/MOUSE 1 MB HI-COLOR	$169
GRAPHICS ULTRA PLUS 1MB W/MOUSE VRAM	375
GRAPHICS VANTAGE 1MB W/MOUSE VRAM	25

DIGITIZERS/PLOTTERS

KURTA 12 X 12	$265
SUMMASKETCH 12 X 12	295
CAL COMP 12 X 12	295

CALL FOR OTHER MODELS

MOTHERBOARDS

386/SX-33	$110
386/DX-33	110
386/DX-40	120
486/SX-25	130
486/DX-33	140
486/DX-50	150
486/DX2-50	140

HARD DRIVES

WESTERN DIGITAL	
85 MB IDE	$238
125 MB IDE	290
212 MB IDE	465
CONNER	
42 MB	$170
85 MB	255
120 MB	295
212 MB IDE	295
212 MB SCSI	CALL
540 MB IDE	CALL
QUANTUM	
52 MB IDE/SCSI	$225
105 MB IDE	CALL
122 MB IDE	335
210 MB IDE	585
240 MB IDE	CALL
425 MB SCSI	975
MAXTOR	
80 MB IDE/SCSI	$245/280
130 MB IDE/SCSI	295/325
213 MB IDE/SCSI	475/555
340 MB IDE/SCSI	725/825
535 MB IDE	CALL
FUJITSU	
326 MB SCSI-2/IDE	$CALL/795
420 MB SCSI-2/IDE	CALL/985
513 MB SCSI-2/IDE	CALL
67 1 MB ESDI/SCI	1275
PANTHER	
1.2 GB SCSI	$1675
1.7 GB SCSI	2245

FLOPPY DRIVES

1.2 MB 5 1/4"	$55
1.44 MB 3 1/2"	50
2.88 MB 3 1/2"	CALL

TAPE BACK-UP

COLORADO	
DJ-10 120 MB INT	$185
DJ-20 250 MB INT	250
QFA 700 700 MB	CALL
IRWIN.	CALL
ARCHIVE.	CALL
MAYNARD.	CALL

MODEMS/FAX

ZOLTRIX	
2400 BAUD INT	$35
2400 BAUD INT MNP5	49
96/24 SEND & RECEIVE FAX/ MODEM W/MNP5	75
96/24 SEND & RECEIVE FAX/ MODEM W/MNP5 V.42	105
POCKET SEND & RECEIVE FAX/MODEM EXT	145
ZOOM	
96/24 FAX MODEM V.42 BIS MNP5 INT/EXT	$135/155
96/96 FAX/MODEM V.32 BIS MNP5 INT/EXT	245/265
144/144 FAX/MODEM INT/ EXT	309/329
PRACTICAL PERIPHERALS	
PM 14400 FX96 (14.4 MODEM 96 FAX) V.32 BIS INT	$365
PM 14400 FX96SA V.32 BIS EXT	435
US ROBOTICS	
COURIER 144 V.32, V.32, V.32 BIS, V.42, V.42 BIS MNP5 INT/EXT	$535/555
SPORTSTER 96/96 FAX MNP5 EXT	319
SPORTSTER 14.4 V.32 BIS, V.42 BIS INT/EXT	319/349
SPORTSTER 96/14.4 FAX MODEM MNP5 INT/EXT	339/359

SYSPER

SYSPER TECHNOLOGIES, INC.

4031 CLIPPER COURT, FREMONT, CA 94538
HOURS: MON-FRI: 8:30-6/ SAT. 10-4PM
FAX: (510) 651-9699

TEL: (510) 651-8002

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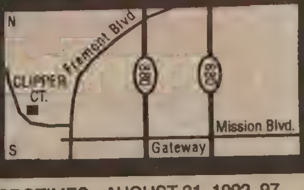
NOT RESPOCIBLE FOR TYPOGRAPHIC ERRORS



PRODUCT WATCH

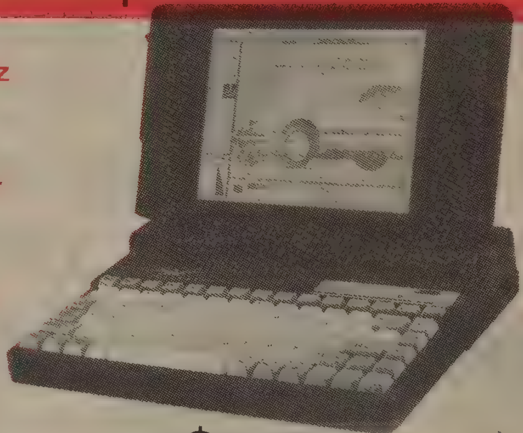
ASCO

Advanced Scientific Corp.
The criterion of quality

Dealers Are You Still Searching For A Niche?

ASCO Corporation announces full featured, low cost notebook that eliminates the external power brick.

New Notebook PC will feature 386SXL 25 MHz processor, Extra Long Battery Life, and the only Notebook available with a Built In Power Brick. All this for under $1399, Don't pay $2500 for a label! Are you listening Dealers? Call Toll-Free for more information.



ASCO Notebook
386SXL/25MHz
2MB memory
60HD or 80HD
9.5 VGA LCD
Built in AC Brick
1 Year Warranty

NO BRICK!

New Notebook PC from ASCO puts an end to the ***BRICK!***

$1370 2 MB RAM, 60MB HD
$1450 2 MB RAM, 80MB HD

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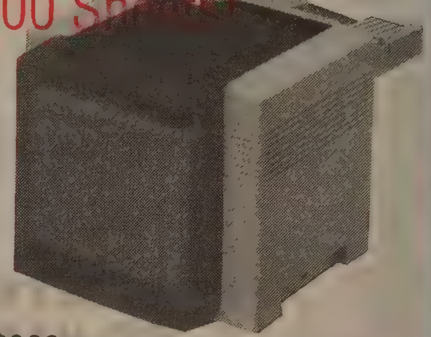

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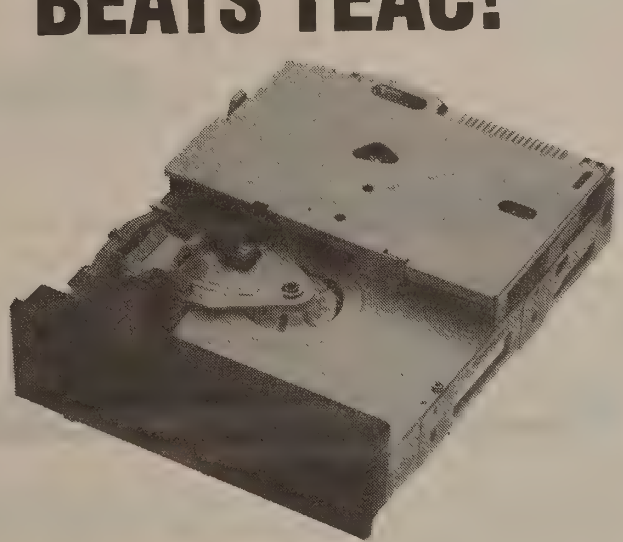

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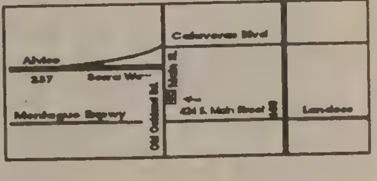

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Tseng 1MB	$79
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Orchid Fahrenheit w/sys	$210
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Diamond Stealth	$225
Mylex GLI	$269
ATI Ultra Grpx 1MB	$365

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386 DX 25/33 w/64K Cache
Medium Tower Case, 4MB, IDE Cont. 2SPG, 1.44 Floppy Drv, 80MB Hard Drive, 512K SVGA Crd, SVGA .28 Color Monitor, 101KB, Mouse, DOS 5 WIN 3.1........$1020/1060

486 DX 33 64/256K Cache
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386 SX 16/25 MHz
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486 SX 20/25 MHz
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Other Japan. 1.2/1.44	51/47
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ST80......full h	$269
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MXT203	$757
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SCSI	
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1.0 GB 3.5" Drive	$1835

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Syquest 44MB Dr	$290
w/ Ext Cs, Cbls, cartridge, Cont	$485
Syquest 88MB Dr	$390
Bernoulli 44 Insider	$907
Bernoulli 90 Insider	$840
Cartridges see storage media	
IDE: Upto 1GB removable kits	$39

MONITORS

Mono 12"	$73
Mono 14"	$93
Mono 9" VGA	$108
Mono 14" SVGA	$109
Black SVGA 1024,.28	**$285**
VGA 13" .28 Color	**$150**
VGA 640,.51/.41	$184/197
SVGA [HITACHI tube] .28	$269
SVGA CTX Autoswitch	$269
SVGA PB Made in Japan	**$309**
M/Syn V3	$447
Sony 1304S	$569
SVGA CTX.**non Interlaced**	$305
Samsung 15"	$499
Samsung 17"	$769
Magnavox 20" 1280 NI	$1357

see our engineering section for a bigger list of monotors.

STORAGE MEDIA

Floppy 1.44 Bulk	$.79
Floppy 1.2 Bulk	$.49
Tape DC2000XL	$18
Tape DC2120 250MB	$19
DAT 4mm 60/90 mtr	$19/29
DAT 8mm 54/112 mtr	$18/24
Syquest 44MB Cart	$72
Syquest 88MB Cart	$119
Bernoulli 44MB 3Pk	$315
Bernoulli 90MN 3Pk	$442

TAPE

Colorado 120/250MB	$179/234
Colorado 700MB	699
Archive 215S/525S	$477/729
SEI [parallel-port interface] 250MB	
..ideal for moving from unit to unit.	
...5.25" Archive SCSI full kit	$755
DAT Tape HP 2GB	$1345
SYTOS drivers	$175

SOFTWARE

Utilities	
Norton Anti Virus/Utilities	$89/114
PC Tools 7.1 w/Antivirus	$99
MS Works	$95
After Dark	$39
Carbon Copy Plus 6.0	$110
Databases/Worksheets	
DBASE IV 1.1	$470
FOXPRO 2.0	$490
QuattroPro/Lotus 1-2-3	$310/403
MS Excel for Win	$301
Desktop Publishing/CAD	
MS Word 2.0 for windows	$310
Harvard Graphics for Win	$335
PageMaker for Win	$475
Word Perfect 5.1	$256
Corel Draw 2.01	$397
Adobe type manager	$65
Design CAD 3,1 3D	$218
Operating Systems	
SCO UNIX DEV sys3.2.2	$
SCO UNIX m user 3.2.2	$
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DOS 6..DR	**$69**
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60MB 2.5" IDE	$255
80MB 2.5" IDE	$390
1.2MB External Drive	$175

MICRO MARKETPLACE

ENGINEERING CAD/CAM

Monitors

Hitachi	
15MVX 15" FST .28, LMF,70Hz	$599
CM2085 20" 1280 Anti Glare	$1395
CM2087 20" 1280 72Hz.Micro	$1840
CM2187 21" FST 1600 Micro	$2390
Toshiba	
P17CU01 17",FST,1024,70Hz	$960
P17CS01 17",FST,1280,.26	$1292
P21CM00 21",FST,1280	$2129
Sony	
CPD1304S 14",*MPRII*,70Hz	$589
CPD1604S 17"..OrigOEM	$1025955
GDM1936 20" Trinitron	$2489
Idek	
MF5117/521717",60/70Hz	$920/950
MF5221A 21",LMF,1280,72Hz	$2020
MF5421A 21",LMF,1600,.26	$2445
Taxan	
MV550 15",FST,.28,70Hz	$599
MV850/875+17",FST,.31/.26	$929/1165
Nanao	
9080I 16",1280,.28,*MPRI*	$945
F550I 17",FST,1280,.28,*MPRII*	$1115
T560I 17",Trin,1280,.26,*MPRII*	$1909
T660I 20"Trin,1280,72Hz,*MPRII*	$2549
Magnavox	
20CM64 20",1280NI,.31	$1357
NEC	
3FGX 15",.25	$649
4FG 15",.25,Microp	$755
5FG 17",.26,Microp	$1375
6FG 21",.26,Microp	$2835
MAG mX17F 12" 1280,.26	$1195

GRAPHIC ADAPTERS

NUMBER NINE #9GXI	
L22 Win,T34020,1280,72Hz,16C	$917
L23 ACAD,T34020,1280,16C	$1215
L24 Win,T34020,1280,256C	$1286
L25 ACAD,T34020,1280,256C	$1430
HERCULES	
GOLD 16, Ti34010	$295
GOLD 16+2, Ti34010	$425
GOLD 24, Ti34010, 24 Bit	$365
GOLD 24+2, Ti34010, 24 Bit	$495
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X/Series 16,1280,72Hz,DPC	$1497
X/Series 256,1280,72Hz,DPC	$1797
Cobra Sp,1024,72Hz,Rend Rdy	$1077
Design Master, 32k Color	$315
MYLEX	
GXE020B Ti34020	$1045
DIAMOND COMPUTERS	
Speedstar +	$139
Speedstar 24	$169
STEALTH 1MB	$225
GENOA	
7900 16m Color (24 bit)	$159
7860 1MB Hi-Color	$132
8860 S3 Chip Hi-color	$209

Sorry, we don't have the Monitors, Plotters, Digitizers, & Scanners on Display. Please treat these as Catalog orders.

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Hitachi CM2087/X-Series	$3270
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SONY 1304S/Speedstar+	$695
Hitachi CM2085/Dia Stealth	$1643
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DMP-162R A-E, 8 Pen, Roll Med	$4835
ENCAD	
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XLP 12x18 w/16btn or 4btn,Pen	$529
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Edge Feed MS-II Omni, Kit	$729
Flatbed 600G Photostyler, Kit	$1056
Flatbed 600Z Photostyler, Kit	$1344
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1/2 Page Greyscale	$256
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NE1000 Comp 8bit Thin/Thick	$89
Arcnet 8/16 bit	$59/69
WESTERN DIGITAL	
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8 bit Ethernet Thin/Thick..bulk	$125
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3C503 16 bit Thin/Thick	$165
3C507 16 bit Thin/Thick	$294
D-LINK	
16 bit 10BaseT	$129
MYLEX LNE	$327
ARTISOFT	
AE-2 Lantastic Kit	$459
AE-2 16 bit Adapter	$199
Z-2 Lite Kit 2 Stations	$94

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CN50ET 10BaseT	$185
CN50E Coax 10Base2	$185
CN50A Arcnet	$149

HUBS

D-LINK 12 Port 10BaseT	$535
D-LINK 4 Port 10BaseT Int	$285
D-LINK DE-1500 w/SNMP	$875
Comp 12 Port 10BaseT	$525

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COMPUTONE	
Advantage 8 ATV8-DB25	$515
Intelliport AT8-DB25	$625
Intelliport AT16-DB25	$1088

UPS's

AMERICAN POWER	
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APC 400VA, SB, 15 Min	$163
APC 600VA BK, SB, 10 Min	$263
APC 800VA, SB, 10 Min	$549
APC 1200VA, SB, 10 Min	$779
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Ver 3.11 20/50 User	$1957/2797
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NEC Ext Par Port [Speakers, 7 CDs..]	$529
...Ext SCSI (full set as above)	$508
7 Pak.. [Mam,Ill Ency 2.0, World & Us, .Ref Lib,Game II, Nat Geog]	$115

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LOGITECH	
Fotoman	$470
Scanpad	$15

VIDEO MONITORS

SONY	
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PVM-2530 BS27",Color,640x200	$1295

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MODEMS/FAXES

2400 Modem Int	$35
2400 Modem Ext	$69
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96/24 FAX/Modem for win	$72
THE COMPLETE PC	
The Complete Communicator	$299
US ROBOTICS	
9600 V.32 V.42bis..Int/Ext	$265/285
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14,400 Spr Md/Fax Int/Ext	320/337
14,400 CHST/PC-N Int/ExtV.42	$504/524
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ZOOM 14,400..Int VPV32..[*]	$279

[* to be released]

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KXP4450i 11ppm,300, 28f	$1099
IBM	
Laser 10,10ppm,300/600dpi	$1735
Laser 10L 10ppm,300/600dpi	$2355
Okidata	
OL400, 4ppm, 300dpi	$599
w/ 2.5MB	$735
OL800, 8ppm, 300dpi	$899
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OL830, w/ 2MB post script	$1278
Oki ML320 320cps dot matrix	$320
Lasermaster 1000 dpi 10ppm	$4995
Citizen	
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color option works on both	$42
GSX145 24 pin wide	$395
Notebook Pr. CTZPN48 w/bat	$359
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HP IIP,IIIP..1/2/4MB	$75/118/205
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HP IIISi..1/4MB	$75/225
Canon LBP II..2/4MB	$129/214
Pan 4420,4450i.1/2/4MB	$86/129/215
Pan 4450..1MB	$143
Pan 4455..1/2MB	$140/182
Oki400..1/2MB	$87/129
Oki 800,820..1/2/4MB	$99/141/227
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3C87SX-25	$79
3C87-25	$88
3C87-33	$89
3C87-40	$99

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Also Full line - European/Arabic KBs	
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T: [408] 479-9981 F: [408] 479-9983

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AEF Computers
4933 San Leandro St.
T: [510] 533-6831 F: [510] 533-6833

SanFrancisco/Arprt
Quadro Systems
400 Oyster Pt. Blvd # 208
T: [415] 615-4646 F: [415] 615-0332

Pleasant Hill
STI Computers
609 Gregory LN #110 [sandalwood ctr]
T: [510] 256-9938 F: [510] 256-9983

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Computer Systems 2000
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Fax: [317] 879-1410

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Tel/Fax: [207] 990-3552

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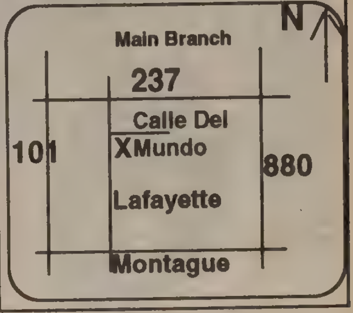

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486-50/256K C	734	918	1197	1363	1435	1510	1541	1717
486-33/128K C w/2 Local Bus Slots	514	709	993	1159	1231	1305	1337	1512
486-33/64C UP TO 64 MB, 512K C	488	673	952	1118	1190	1264	1296	1471
3486-33/64K C W/386-33 CPU	198	383	662	828	900	974	1006	1181
386-40/64C	196	381	659	825	897	971	1003	1178
386-33/64C	174	359	637	803	875	949	981	1156
386DX-25	142	320	614	779	851	925	957	1132
386SX-25	162	287	566	732	803	882	910	1086
386SX-16	96	281	560	726	797	876	904	1080
286-20	67	250	529	695	767	845	873	1049
286-12	55	239	518	684	756	834	862	1038

BASIC SYSTEMS CONFIGURATION:

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256K-80	11

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KEYTRONIC 101 KB	31
OMNI 101N	68

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IDE 2 HD/2 FD w/2S/1P/1G	16
MFM 2 HD/2 FD	40
SCSI DTC 3280	110

MONITORS

NANAO 9080I, 16", 1280X1024 .28, NI	$992
VIEWSONIC GE, 14", 1024X768, .28, NI	355
CTX 1024X768, NI, .28	315
SVGA 1024X768, .28	265
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2400 EXTERNAL MODEM	63
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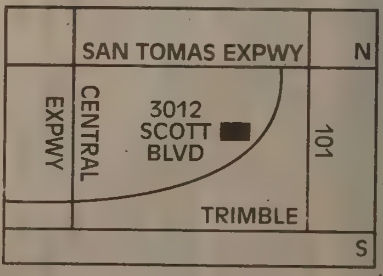

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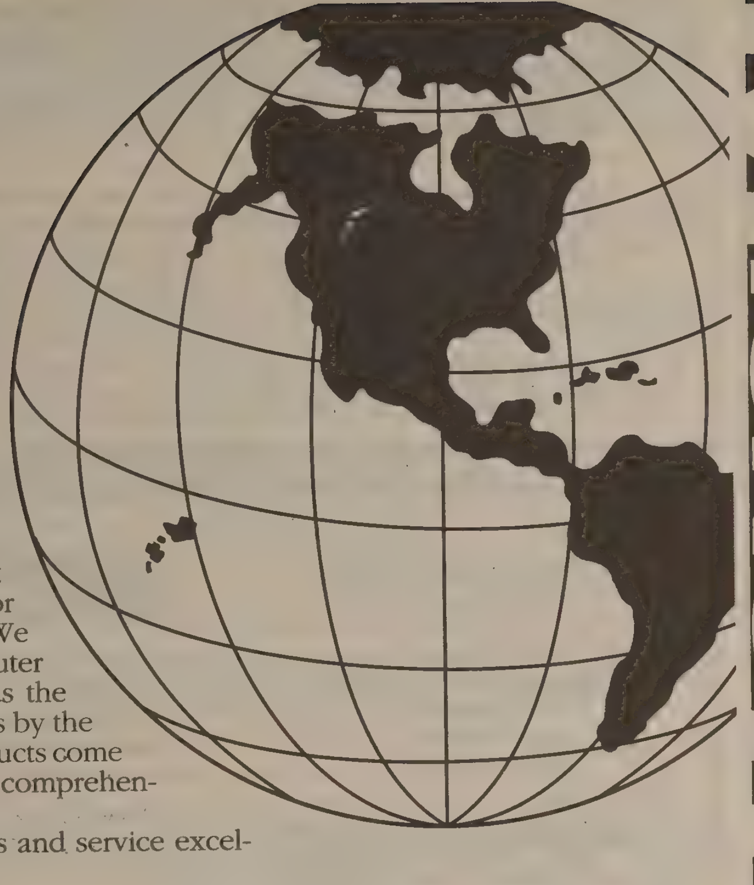

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- UMC chip set
- 2 ISA compatible local bus 32-bit slots
- Five 16-bit slots and one 8-bit slot
- 8 SIMM sockets for up to 32M DRAM
- INTEL 80486-50MHz CPU

$740

MOTHERBOARDS

486DX-50/64K	$710
486DX-33/64K	495
386DX-40/64K	180
386DX-33/64K	175
386SX-33/32K	140
386SX-33	120
386SX-25	120

SIMM MEMORY

256KX9-70	$11
1MX9-70	32
4MX9-70	127

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IDE 2HD/2FD/2S/1P/1G	$19
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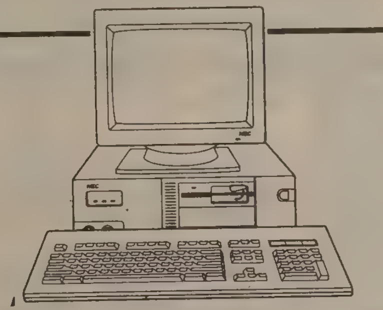
2.88M FD/2HD/4FD/2S/1P	90

FLOPPY DRIVE

TEAC 2.88M FD	$90
TEAC 1.44M FD	53
TEAC 1.2M FD	58
20MB FLOPTICAL	499



486-33/50 $1250/$1450

- MB WITH CPU
- 1M DRAM
- 1.2M OR 1.44M FD
- 120MB HD
- MINI-TOWER
- 230 W POWER SUPPLY
- 2S/1P/1G PORTS
- 64K CACHE RAM
- SVGA CARD 512K
- SVGA MONITOR
- 101 KEYBOARD

386-33/40 $880/$890

- MB WITH CPU
- 1M DRAM
- 1.2M OR 1.44M FD
- 80MB HD
- MINI-TOWER
- 230 W POWER SUPPLY
- 2S/1P/1G PORTS
- 64K CACHE RAM
- SVGA CARD 512K
- SVGA MONITOR
- 101 KEYBOARD

386SX-25/33 $760/$770

- MB WITH CPU
- 1M DRAM
- 1.2M OR 1.44M FD
- 40MB HD
- MINI-TOWER
- 2S/1P/1G PORTS
- SVGA CARD 512K
- SVGA MONITOR
- 101 KEYBOARD
- 230 W POWER SUPPLY

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This new 486DX2-66 turns a regular 33MHz motherboard into a 66MHz machine. With 256 internal cache it's ideal for computation-intensive operations. With local bus VGA and controller, your productivity will increase dramatically.

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- UMC chip set
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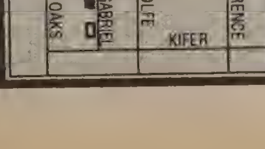

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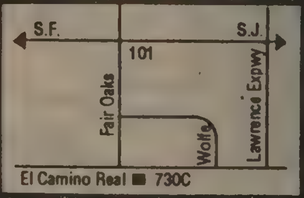

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386DX 25MHz NC	$143	486DX 33MHz w/256K	$470
386DX 33MHz NC	$159	486DX 50MHz w/256K	$699
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386DX 33MHz w/256K	$195	486DX2 66MHz w/256K	$950
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286 20MHz	$239	$639	$699	$799	$979
386SX 25MHz	$289	$689	$749	$849	$1,029
386DX 25MHz NC	$339	$739	$799	$899	$1,079
386DX 33MHz NC	$359	$759	$819	$919	$1,099
386DX 33MHz w/64K	$352	$752	$812	$912	$1,092
386DX 33MHz 264K	$379	$779	$839	$939	$1,119
386DX 40MHz 64K	$356	$756	$816	$916	$1,096
386DX 40MHz 264K	$380	$780	$840	$940	$1,120
486SX 20MHz NC	$367	$767	$827	$927	$1,107
486SX 25MHz NC	$387	$787	$847	$947	$1,127
486DX 33MHz w/64K	$645	$1,045	$1,105	$1,205	$1,385
486DX 33MHz 256K	$669	$1,669	$1,129	$1,229	$1,409
486DX 50MHz 256K	$860	$1,260	$1,320	$1,420	$1,599
486DX EISA 33MHz 256K	$980	$1,380	$1,440	$1,540	$1,720
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ET4000 Tseng	S3 86C911 GUI
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Trident SVGA card w/512K	$48
Trident SVGA card w/1M	$60
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Diamond Stealth w/1M VRAM	$238

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120MB IDE	$280
130MB IDE	$290
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340MB SCSI	$600
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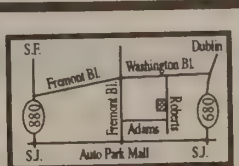

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486-33/64C	$ 468	$ 619
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- 101 Key Enhanced Key Board
- 1024-768.28DP 14" Color Monitor
- 512K SVGA Card
- Mini Tower or Desktop Case
- 200W Power Supply

486-50/64K EISA	$1,866
486-33/64K EISA	$1,638
486-50/64K Cache	$1,586
486-33/64K Cache	$1,332
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386-33/64K Cache	$1,034
386DX - 25	$1,016

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BASIC SYSTEM INCLUDE: Motherboard, CPU, 1MB RAM , 1:1 2 HD/2 FD controler, 1.2 MB or 1.44 MB floppy drive, internal clock / calender, math co-processor socket, case, power supply, & 101 - key keyboard

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VIEWSONIC 7	1038
VIEWSONIC 8	1548
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NANAO F550I	1060
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NEC 4FG (15", 1024•768, 0.28)	740
Sony CPD 1304(14", 1024•768, 0.25)	542
Sony CPD 1604 (17", 1024•768, 0.25)	1090
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14" Monochrome	92
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14" SVGA (.39dp)	222
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9600 INTERNAL MODEM	283
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MICROSOFT WORD for WINDOWS 2.0	317
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CHICNY 101-KEY	26
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WEITEK 4167-25	575
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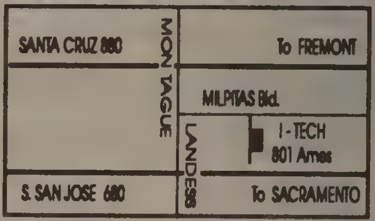

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Orchid Prodesigner II w/1M	
Impression plus non interlaced	CALL
VGA card w/256K	CALL
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- ☐ Super VGA Monitor & SVGA 16-Bit Video Card
- ☐ 1:1 Interleaved 2HD/2FD Controller
- ☐ 2 Serial, 1 Parallel & 1 Game Ports
- ☐ 101 Enhanced Keyboard
- ☐ 230W Power Supply and Vertical Case

$950 486SX-20MHz Intel 486SX-20 MHz System

- ☐ Built-in Math Co-Processor Socket
- ☐ 1 MB Ram 70ns Expandable to 32 MB
- ☐ 80 MB IDE Hard Drive 18ms with 32K Cache
- ☐ TEAC 1.2 MB or 1.44 MB Floppy
- ☐ Super VGA Monitor & SVGA 16-Bit Video Card
- ☐ 1:1 Interleaved 2HD/2FD Controller
- ☐ 2 Serial, 1 Parallel & 1 Game Ports
- ☐ 101 Enhanced Keyboard
- ☐ 230W Power Supply and Vertical Case

$920 386DX-40MHz 386DX-40 MHz System

- ☐ Built-in Math Co-Processor Socket
- ☐ 1 MB Ram 70ns Expandable to 32 MB
- ☐ 80 MB IDE Hard Drive 18ms with 32K Cache
- ☐ TEAC 1.2 MB or 1.44 MB Floppy
- ☐ Super VGA Monitor & SVGA 16-Bit Video Card
- ☐ 1:1 Interleaved 2HD/2FD Controller
- ☐ 2 Serial, 1 Parallel & 1 Game Ports
- ☐ 101 Enhanced Keyboard
- ☐ 230W Power Supply and Vertical Case

$890 386DX-33MHz Intel 386DX-33 MHz System

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- ☐ 101 Enhanced Keyboard
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$830 386DX-25MHz Intel 386DX-25 MHz System

- ☐ Built-in Math Co-Processor Socket
- ☐ 1 MB Ram 70ns Expandable to 32 MB
- ☐ 80 MB IDE Hard Drive 18ms with 32K Cache
- ☐ TEAC 1.2 MB or 1.44 MB Floppy
- ☐ Super VGA Monitor & SVGA 16-Bit Video Card
- ☐ 1:1 Interleaved 2HD/2FD Controller
- ☐ 2 Serial, 1 Parallel & 1 Game Ports
- ☐ 101 Enhanced Keyboard
- ☐ 230W Power Supply and Vertical Case

$774 386SX-25MHz Intel 386SX-25 MHz System

- ☐ Built-in Math Co-Processor Socket
- ☐ 1 MB Ram 70ns Expandable to 32 MB
- ☐ 80 MB IDE Hard Drive 18ms with 32K Cache
- ☐ TEAC 1.2 MB or 1.44 MB Floppy
- ☐ Super VGA Monitor & SVGA 16-Bit Video Card
- ☐ 1:1 Interleaved 2HD/2FD Controller
- ☐ 2 Serial, 1 Parallel & 1 Game Ports
- ☐ 101 Enhanced Keyboard
- ☐ 230W Power Supply and Vertical Case

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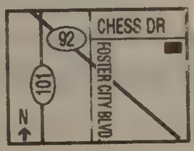

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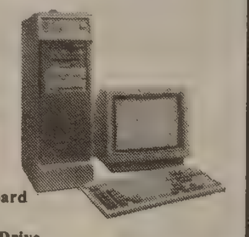

- *Intel 486DX-33/50DX2
- *256KB Cache Memory
- *8MB DRAM 70ns (up to 64MB)
- *Orchid EISA ProDesigner IIs 40% Performance Boost Up Support Up to 1024x768 & 72Hz 32,768 Hi-Color RAMDAC
- *TEAC 1.2MB Floppy Drive
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- *Logitech 3-Buttom Mouse w/ Pad
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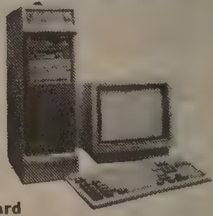
Complete Sys. $ 2799/2849
(468DX-50 add $ 120) (Monitor not included)

486-25SX/33DX/50DX2 MHz 64KB Cache 120MB HD ISA

- *Intel 486-25SX/33DX/50DX2 MHz
- *64KB WriteBack Cache (up to 256 KB)
- *4MB DRAM 70ns (up to 32MB)
- *120MB 15ms IDE Hard Drive
- *SAMSUNG SyncMaster 3 1024x768 0.28dp SVGA monitor
- *Trident 8900C 1024x768 w/1MB SVGA Graphic Card
- *TEAC 1.2MB Floppy Drive
- *TEAC 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Microsoft Compatible Mouse w/ Pad
- *2HD/2FD IDE Controller w/ 2 Serials, 1 Parallel, & 1 Game Ports
- *Tower Case w/230 Watts Power Supply
- *Microsoft DOS 5.0 Package

Complete $ 1339/1549/1679
(486DX-50 add $ 100)

ORCHID 486DX-33/50DX2 32-Bit Local Bus Graphic



- * Intel 486DX-33/50DX2
- * 256KB WriteBack Cache
- * 4MB DRAM 70ns (up to 32MB)
- * Conner 170MB IDE Hard Drive
- * ORCHID Fahrenheit 1280D 32-Bit Local Bus Slot w/ 1MB & Hi-Color
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- * Tower Case w/ 230 Watts Power Supply
- * Microsoft DOS 5.0 Package

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(486DX-50 add $120) (Monitor not included)

386DX-20/25 MHz SVGA 80MB HD

- *386DX-25 MHz
- *2MB DRAM 70ns (up to 8MB)
- *80MB 16ms IDE Hard Drive
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- *Trident 9000 1024x768 SVGA Graphic Card w/512KB
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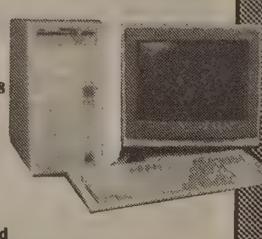
- *3.5" 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Microsoft Compatible Mouse
- *2HD/2FD IDE Controller w/ 2 Serials, 1 Parallel, & 1 Game Ports
- *Mini Tower Case w/ 230 Watts Power Supply

Complete Sys. $ 949/999

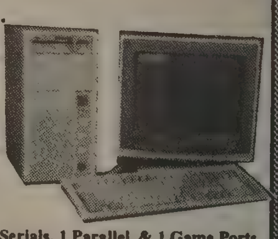
386DX-33/40 MHz ISA 64KB Cache 105MB HD



- *386DX-33/386DX-40
- *64KB WriteBack Cache (up to 256KB)
- *4MB DRAM 70ns (up to 32MB)
- *105MB 15ms IDE Hard Drive
- *SAMSUNG SyncMaster 3 1024x768 0.28dp SVGA Monitor
- *Trident 8900C 1024x768 w/1MB SVGA Graphic Card
- *TEAC 1.2MB Floppy Drive
- *TEAC 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Microsoft Compatible Mouse w/ Pad
- *2HD/2FD IDE Controller w/ 2 Serials, 1 Parallel, & 1 Game
- *Mini Tower Case w/ 230 Watts Power Supply
- *Microsoft DOS 5.0 Package

Complete Sys. $ 1199/1229

386SX-25MHz SVGA 40MB HD



- *386SX-25MHz
- *2MB DRAM (up to 16MB)
- *40MB 22ms IDE Hard Drive
- *Super VGA 1024x768 0.28dp Color Monitor
- *Trident 9000 1024x768 SVGA Graphic Card w/512KB
- *1.2MB Floppy Drive or 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Microsoft Compatible Mouse
- *2HD/2FD IDE Controller w/ 2 Serials, 1 Parallel, & 1 Game Ports
- *Mini Tower Case w/ 230 Watts Power Supply

Complete System $ 859
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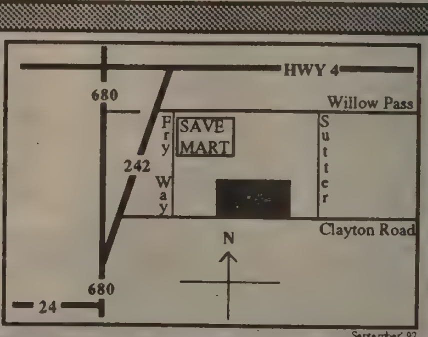

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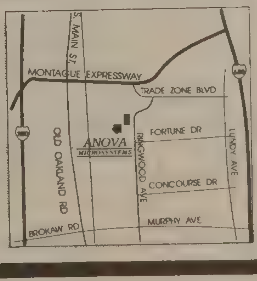

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- 4 MB RAM
- 1.2 MB Teac Floppy Drive
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- IDE Controller Card
- I/O (2S/1P/1G) Card
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- 80 MB IDE Hard Disk Drive
- IDE Controller Card
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4Mx9-60	120
1Mx9-10	29
1Mx9-80 (3 Chip)	30
1Mx9-70	32
1Mx9-60	35
256x9-70	12
256x9-10	10
256x9-80	10
256x9-60	12

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1Mx8-70	$32
1Mx8-10	27
1Mx8-80	30
4x8-80	95

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DRAM 256X4		256X4-80NS	4.75
256X4-120NS	$4.00	256X4-70NS	4.00
256X4-100NS	4.25	256X4-60NS	5.00
DRAM IMGXI		1 MGXI-80NX	3.60
1 MGXI-120NS	$3.00	1 MGXI-70NX	3.65
1 MGXI-100NX	3.50	1 MGXI-60NX	3.75
256XI-STATIC COL			
51258P-10	$1.00	1X4-80 ZIPP	.20
AAA 2800-08	1.25	1X4-80STT ZIPP	.20
AAA 2800-07	1.75	1X4-70STT ZIPP	.22
AAA 2800-60	2.00		
DRAM 64X4		**DRAM 64X1**	
4164-120	$1.50	4164-15	$0.85
4164-100	1.99	4164-12	0.95
		4164-10	1.50
DRAM 256X1			
256XI-150NS	$0.85	256XI-80NS	1.10
256XI-120NS	0.89	256XI-70NS	1.20
256XI-100NS	0.99	256XI-60NS	1.25

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2 MB Module	199

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514402-80 (1X4) STT, ZIPP	$14
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80386DX-25	70
80386DX-33	85
80386-40	85
80386SX-16	35
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80287-10 10 MHz	59
80C287-12 12 MHz	89
80387SX-16	85
80387SX-20	89
80387DX-20	89
80387DX-25	75
80387DX-33	95
WEITEK	
3167-20 20 MHz	$80
3167-25 25 MHz	135
3167-33 33 MHz	240
4167-25 MHz	325
4167-33 MHz	595
CYRIX	
82S87SXL	$59
83087-16	59
83D87-20	85
83D87-33	85
83D67-40	99
83871-SX	75
83X87-20SX	75
83S87-25	75
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2C87-12	59
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3C87-20	79
3C87-25	79
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3C87-40	95
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3S87-20SX	69
3S87-25SX	69

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US 83C87SX-25	75

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Mac IIfx	
M0376LL-A 4 MB Kit	185
16 MB Kit (requires MAXIMA)	510
Mac Classic	
M3631LL-A 1 MB Exp Brd	90
Mac Portable	
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2 MB Card (True Static)	380
3 MB Card (True Static)	530
4 MB Card (True Static)	665
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2 MB Module	170
4 MB Module	320
6 MB Module	435

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Mdls 70-061; -E61; -121; 50Z; 55LS; 65LS; 55SX; 65SX; P70; Exp Brd 6450605; 6450609; 34F30xx	
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Mdls 70-A21; -A61; -B21; -B61	
6450608 2 MB Module	99
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Mdls 80-111; -121; -311; -321	
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Mdls 80-A21; -A31	
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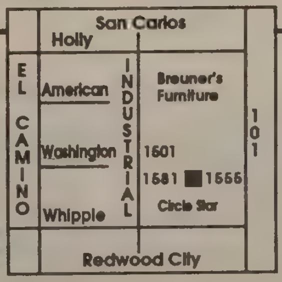

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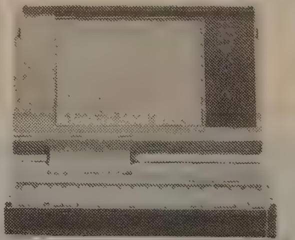

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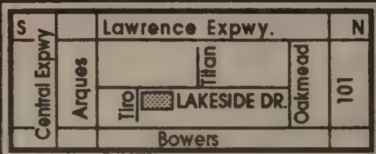

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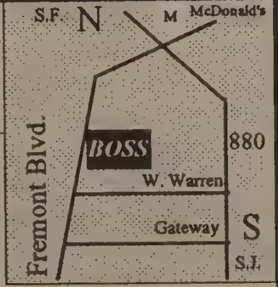

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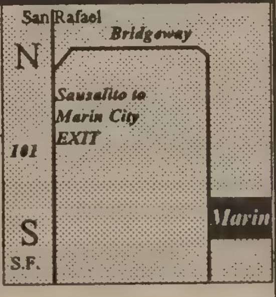

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4th annual Venture Capital Issue

Every year our venture capital coverage seems to be a little different. On the whole, this isn't too surprising, because the industry's in a constant state of change.

There are those, for instance, who say that Silicon Valley Is Dead, and that the spirit of innovation has moved elsewhere. But you sure wouldn't know it by the crowd of eager programmers and engineers who recently jammed a meeting of SEF's UNIX SIG to hear three venture capitalists offer advice on creating and funding viable startups. Also, in comparison to last year, there seems to be more startup capital available—for the right project.

Our profiles this year hint at some of the possible "right" projects, or at least the areas in which they might come into existence. The problem, as we've heard over and over for the past year, is that the industry is on the brink of a change at least as radical as that launched by the personal computer—new technologies, new standards, new players who may not even be at the startup stage yet. Investors and entrepreneurs alike are trying to find ways to take advantage of the changes to come. In the following articles, industry veteran and longtime VC William Davidow talks about strategies for these chaotic times; and president Dennis Sisco of D&B Enterprises, which manages the recently formed venture capital firm of Dun & Bradstreet, explains the crucial importance of information—whether business databases or entertainment-oriented content—in future markets, and D&B's interest in investment opportunities in the area.

Our cover story features America Online, funded by venture capital seven years ago and only now coming into its own with a range of services that grows daily and a lucrative stock offering last March. In 1985 there was a plethora of money-losing telecommunication/conferencing/videotext services; it took vision and shrewd business sense to see what was different about this venture and how to make it succeed. The same sort of qualities will be crucial in creating successful companies in a rapidly changing environment.

Finally, the following article is the text of an address given by William Davidow at the Agenda '92 conference last year, which we found a thought-provoking preview of things to come.

—eds.

From Virtual Reality To The Virtual Corporation

By William Davidow

"From Virtual Reality to the Virtual Corporation" was given by William Davidow as a keynote address at the Agenda '92 conference last year. This annual conference was created by Stewart Alsop, now editor-in-chief of InfoWorld *and editor/publisher of* P.C. Letter. *Agenda '92 is sponsored by* InfoWorld *Publishing Company, Inc., a subsidiary of International Data Group (IDG).*

At Agenda '93, September 20–22 in Laguna Niguel, Alsop will distribute copies of the new book The Virtual Corporation, *with his personal endorsement, to conference attendees.* The Virtual Corporation *is coauthored by William Davidow and Michael Malone and published by Harper Collins. It will be available in Bay Area bookstores beginning in October.*

We stand on the threshold of a business revolution. The corporation as we know it today is largely obsolete. Its management techniques were developed in the late 1800s based on the infrastructure that was put in place by the railroads, and on the organizational techniques and the way of directing work developed by Frederick Winslow Taylor and his scientific management. In its place, a new corporate paradigm is going to develop, a corporate paradigm that I refer to as the virtual corporation.

The products of the virtual corporation are going to be virtual products, products that will be delivered in any variety, anytime, anywhere. The reason I've chosen the phrase virtual products is because I thought about virtual memory and virtual circuits, and when you think about those things, they are artifacts that come into existence at the time we want to use them. Virtual products and services are so prevalent in our lives today that we don't even realize that they are there.

Probably the first virtual product that I became aware of was the Polaroid snapshot. You took a picture and, sometime in the early 1950s, you had the result in a minute. That forced the virtualization of conventional photography. What happened was that twenty-four-hour Fotomats came into being, which were soon replaced by one-hour photo processing at places like Phototime. In the future I think we can all envision instant photography on electronic cameras. Faxes provide us with virtual mail. Desktop publishing turns us into virtual publishers. Pearle Vision and Lens Crafters deliver custom-made eyeglasses to our specifications in an hour.

Our monetary system has been almost completely virtualized with billions of dollars floating around the globe without the transfer of paper or gold or anything physical to document its trail. And virtual banks are on every street corner, in every shopping center, stored inside ATMs. The travel business has been virtualized with things such as Sabre and Apollo, which put travel agencies in the hands of corporations as well as travel agencies. Of course, not all products can be perfectly virtual, but in this case the journey is probably more the reward than anything else.

The Japanese are striving to produce custom-ordered cars that can be ordered in the morning one day, and delivered within seventy-two hours to the prospective owner's specifications. They are attempting to move from concept to product reality in a year. In other words, they are trying to design totally new cars in twelve months, compared to the sixty months that it takes us in the United States today and the four years that it currently takes in Japan.

Microcomputers are delivered to our specifications, configured in twenty-four hours today by companies such as Dell. Integrated circuits, which used to take one or two years to design and manufacture, can now be produced on an engineer's desk using CAE tools and programmable gate arrays in a matter of hours or in a few days. Benetton is flooding the world with virtual sweaters knit in neutral colors and dyed to match the specification of the market just before they are shipped.

The ideas that I'm talking about are not new. Alvin Toffler hinted about them in *Future Shock* when he talked about mass-produced variety. That was 1970. In 1980 he talked forcefully about rapid mass customization and the third wave. But at that time the concept seemed unreal, too hard to get a grip on. So many pieces of the key technology were missing. MIPS at that time cost hundreds of thousands of dollars, when today we can look at putting them inside systems for about $1 a MIP.

We are going to need all of that computational power if we wish to virtualize our corporations.

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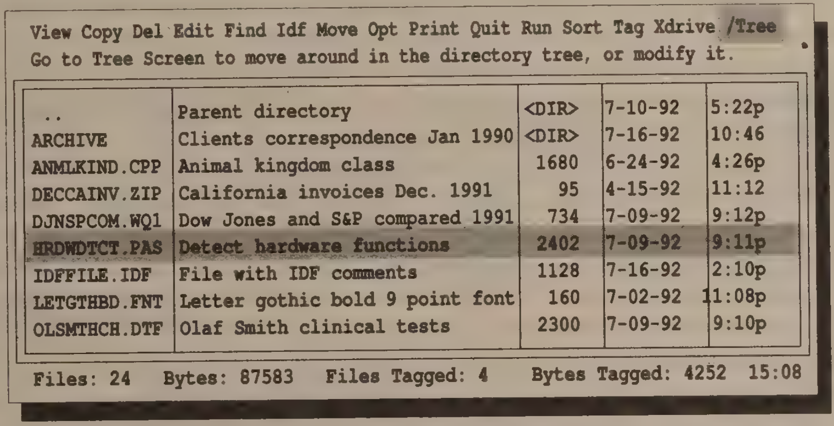

```
View Copy Del Edit Find Idf Move Opt Print Quit Run Sort Tag Xdrive /Tree
Go to Tree Screen to move around in the directory tree, or modify it.

 ..           Parent directory             <DIR>  7-10-92   5:22p
ARCHIVE       Clients correspondence Jan 1990 <DIR>  7-16-92  10:46
ANMLKIND.CPP  Animal kingdom class          1680  6-24-92   4:26p
DECCAINV.ZIP  California invoices Dec. 1991   95  4-15-92  11:12
DJNSPCOM.WQ1  Dow Jones and S&P compared 1991  734  7-09-92   9:12p
HRDWDTCT.PAS  Detect hardware functions     2402  7-09-92   9:11p
IDFFILE.IDF   File with IDF comments        1128  7-16-92   2:10p
LETGTHBD.FNT  Letter gothic bold 9 point font  160  7-02-92  11:08p
OLSMTHCH.DTF  Olaf Smith clinical tests     2300  7-09-92   9:10p

Files: 24   Bytes: 87583   Files Tagged: 4    Bytes Tagged: 4252  15:08
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Things like xerography and laser printing were really not available inexpensively, nor were microcomputers. But what is important as well is that new organizational techniques were not well understood. Things like Toyota's lean production system, which makes it possible to build factories that are extremely responsive to customers' needs.

There is an urgency to all of this. Our economy has its problems. The computer industry—mainframes and minicomputers—is in a slump. It's about to vanish. Our microcomputer business and many of our related software companies are experiencing some pretty difficult times, which we tend to blame on the recession or on too much competition. But there is something else very fundamental going on in the computer industry: our service businesses are in trouble. The banks, the airlines, the hospitals, hotels, accounting, and our legal profession, to name a few. Approximately 80% of our population today is employed in service industries and they are, without a doubt, the single largest consumers of computer power.

I'd like to go through a little bit of history as to how we got in this situation, to explain why this virtual revolution is so important to everybody sitting in this room. In the 1700s the United States was an agricultural economy. Perhaps 80% of the population was involved in producing food to feed themselves and the other 20% of the citizens. The Industrial Revolution started in the late 1800s and over time we grew to be an industrial economy. Farm productivity increased, and if we look around today, approximately 3% of our work force is employed on farms. We all thought that we had made a transition to an industrial economy. In point of fact, in the early 1900s we were more an agricultural economy than we had ever been at any time in the existence of the United States. We had the strongest agricultural economy in the world; we just weren't employing as many people. And we were also industrialized.

In the 1970s we entered the postindustrial era. Approximately 50% of our work force at that time was employed in the production of services. At our apex, our economy was the world's strongest agricultural, industrial, and service economy in the world. So much so that in 1970 a book was published in France called *The American Challenge,* which predicted an absolutely dismal future for European industry as it was subjected to the pressures of the great American companies and corporations such as IBM and General Motors.

Today we Americans are the ones who are concerned about our future. We have seen our national debt balloon, we face budget deficits of over $300 billion, we have come off years of $150 billion trade deficits, and we have seen dramatic increases in unemployment and homelessness. Believing in the postindustrial myth, we have let our manufacturing industries decline. But more and more people now believe that manufacturing is truly important.

Manufacturing matters to the people sitting in this room in a very important way, because much of our service segment and its prosperity is directly linked to the manufacturing segment. When a country loses a manufacturing job, it loses the service jobs directly linked to it—telecommunications, transportation, accounting, computer consulting, legal, banking, and all of the other services that are required to support it. On top of that, it loses—and the economy loses—the jobs that are indirectly related to this. We are therefore deprived of the prosperity that enables us to afford medical services or go on vacations or go to restaurants. When these things happen, our computer industry is stripped of much of its vibrancy.

While all this was going on in the US economy, the economic force behind the creation of what we today call the modern corporation was being stripped of its vitality. Mass production was rapidly becoming obsolete, and no longer only in the United States but in Europe and Japan as well. Mass production was a result of the brilliant conception of Frederick Winslow Taylor, who invented scientific management. He was the person who took out the stopwatch, hid it in a book, and performed all the time and motion studies so that workers couldn't figure out what was going on. Then he prescribed the best way of building things. It was a result of the brilliant production line conception of Henry Ford. Mass production depended on rigidly tooled facilities that could produce very limited varieties of products. Remember when the Model T came in any style you wanted as long as it was black? And it depended on marketing departments that created demand for the products that the factory could produce.

Many of you have probably never seen a mass production facility—you're too young. But if you could have walked through them, you would have seen giant transfer machines capable of stamping out a relatively limited variety of products that cost millions of dollars to put in place and were capable of reasonably limited functions. Mass production became the method of choice for producing inexpensive commodity products of limited variety. We did very well and we prospered in that environment.

But as our technologies have diffused around the world, this is no longer a competitive methodology when faced with low-cost producers in the Third World. So we see things like textiles, shoes, black-and-white TVs, and computer clones produced principally in the developing countries around the world. These are precisely the products that are no longer desirable to make in the United States or Europe or even Japan.

The revival of our economy and of our service industries is going to depend on corporations producing virtual products and services that are high in added value, rich in variety, and produced instantly in response to customer needs. At the core of the virtual revolution is going to be the computer. The virtual revolution is not going to be solely a result of computers and software advances. It is going to be the result of new processes and inventions, but it is also going to occur because we figure out how to reorganize the corporation and make it more productive.

The virtual revolution is going to be dependent on our ability to process four types of information: content information, form information, behavior information, and action information. If you haven't heard those terms before, it is probably because I invented them. The computer industry itself, the data processing industry, the productivity tools that we are supplying to our customers, have all been built on the idea of processing content information, information that answers the questions of who, what, where, and why. Massive data files, records, inventories, budgets, documents, the kinds of things that formerly filled file cabinets.

But as computer power increased, as it became cheaper to do information processing, we gained the ability to process shapes and forms. We could design things with computer-aided engineering software so that we could

Continued on page 268

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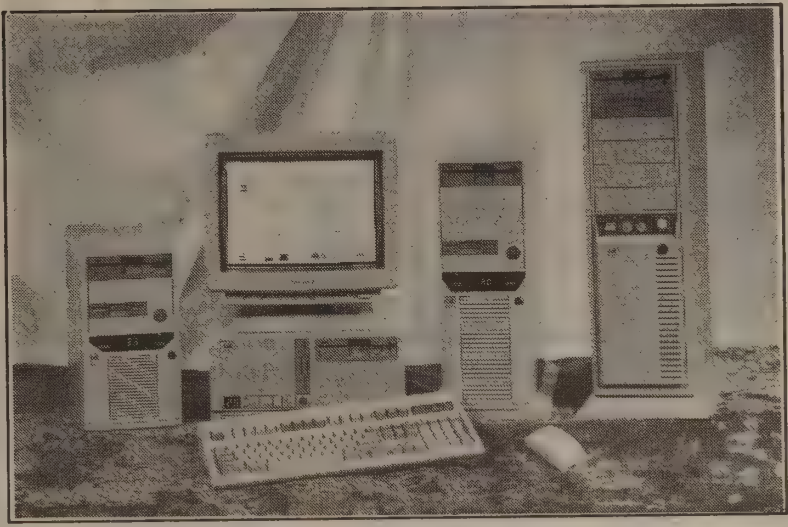

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"In database server test, the **Axik** surpassed Dell, the previous leader, by 5 percent in transactions per minute (TPM). The **AXIK** was 4 percent faster than ALR. In the previous review, we attributed part of Dell's efficiency to its three-bay drive array. The **Axik** excels in this capacity with only one drive.

"The **Axik ACE** is a superior high-end file server with an extremely low price."

PCComputing

July 1992

486DX-50

"We liked the Axik more and more over time. Axik Computer's $2,899 Ace Cache 486DX2-50 System minitower was a favorite among our lab testers, who loved its chassis design and couldn't get over its outrageously fast hard drive performance."

PC Sources

July 1992

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PC MAGAZINE

June 1992

486DX-50

"AXIK 486-50 BEAT ALL OTHERS ON PRICE, PERFORMANCE & FEATURES"

COMPUTER BUYERS GUIDE AND HANDBOOK

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July 1992

486DX-50

"A GREAT BARGAIN"

"Axik Computers has gone to the trouble to build its own boards—and its home-grown ACE-motherboard-loaded tower system blows the competition out the door"

"RECORD TIMES"

"That's why we run our RealWorld Benchmark Tests twice on the Axik: we didn't believe the results the first time out. For the most part, the Axik's scores were among the lowest (that is, fastest) we've ever seen."

"Flat-out performance doesn't mean much if you're not getting value in other areas. The Axik 486WB/50 uses high-quality components like TEAC and Quantum drives, an Orchid VGA card, and a well-built roomy tower case. "All things considered the Axik at $2,849 isn't just a good deal: It's a fantastic buy!"

COMPUTER SHOPPER

July 1992

486DX-50

"You Can Have It All with the *Ace 486/50*"

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"From the PC connoisseur's viewpoint the most interesting thing about the Axik is its motherboard. Axik makes its own boards, and the company's attention to detail shows"

"When you put it together, it's hard not to like the Ace Cache. While some buyers may be reluctant to go with a small startup company's computer, in this case, they should not be hesitant. This is a finely crafted machine made with quality parts. With the Ace Cache, you get great power, performance, and price. You really can have it all."

COMPUTER SHOPPER

August 1992

486DX2-50

Axik's positions the 486DX2/50 as suitable for all applications—from personal workstation to file server to desktop publishing or image processing—and it's right. This system is quite versatile and its moderate case size has ample drive-expansion space.

The benefits of the Axik's speed parts don't show up on the published benchmark scores, but you'll notice them when you're working with the system. For most people, even those with demanding applications, the Axik's 486DX2/50 makes a lot of sense. It combines easy and flexible CPU and I/O-bus speed upgrading, good expansion room for memory and drives, and a solid set of high-performance components.

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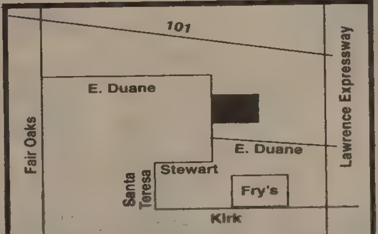

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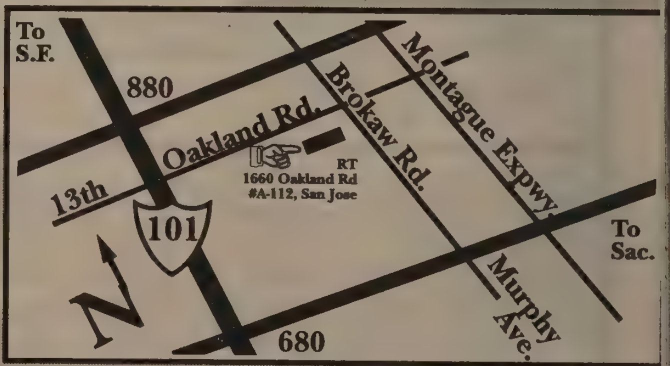

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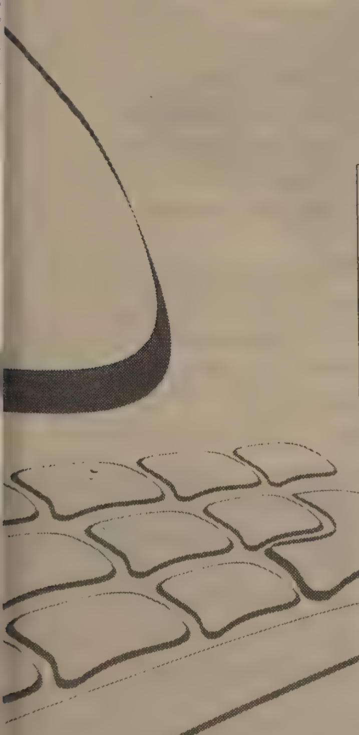

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Times Of Chaos And Opportunity

Veteran VC William Davidow On Riding The Wave Of The Future

BY MARY EISENHART

At the recent Mobile '92 conference, entrepreneurs, executives, analysts, and venture capitalists were struggling to understand—and take advantage of—a veritable explosion of technological breakthroughs. Newton was demonstrated. Publishing executives rhapsodized about the fortunes to be made in satellite-transmitted downloadable books. A host of wireless, pocket-sized, and pen-based gizmos found a receptive audience of would-be users and investors. Panelists speculated for days as to the direction of all this technology until one forthright soul pointed out that if anybody *knew* where it was going, they wouldn't be on a panel discussing it, they'd be keeping their mouths shut and doing a startup.

Indeed, as another panelist noted, the present convergence of various technologies is creating a climate analogous to that of the personal computer industry in 1979—great risk and great opportunity.

Veteran venture capitalist William Davidow, who chaired one of the panels, agrees with this assessment. As one who started making private investments in the '60s and eventually joined Mohr, Davidow Ventures in 1985, he has had occasion to observe the ups and downs of the industry—and figure out effective investment strategies.

Mohr, Davidow, he explains, specializes in "West Coast, early-stage technology companies in the electronics, computer, and software area, the medical device and medical instrument area, and occasionally a deal in the pharmaceutical area." Its partners have strong backgrounds in these areas—Davidow himself is an Intel veteran, and therefore "initially a lot of the deals I saw were in the semiconductor area, but we tend to do less investing there, just because the area's matured. We're constantly having to retool ourselves. I'm moving more into the software and information content businesses."

What sort of early-stage investments would his firm consider attractive in these volatile times? "Early stage to us usually means anywhere from an idea on the back of a napkin to fairly early in the life of the company. We tend not to invest in something if it has a $20 million valuation or more, and we usually like to invest in things that have less than $10 million valuations.

"I can tell you what we always look for, but we never find it. What you'd like to find is a great idea in an area in which you have expertise, with a management team that is highly motivated. What you typically find are deals in the area in which you have expertise, with either management teams with no ideas, or ideas with no management. Or something in between. The problem becomes one of how much risk you want to take. Those are very much judgment calls.

"It's awfully hard to bet on something without somebody who has a vision he wants to make come true. Whether he's a good manager or not. And the risk you run into is that if he has that vision, and you hire a good manager, that that manager kills the vision. We've had that happen."

Davidow stresses the importance, for VCs and entrepreneurs alike, of experience and of learning from it, of the day-in, day-out attention to the details. "Even though I would like to say that this is a field of individual stars, where one of you goes out and finds a phenomenally successful company, and everybody goes home and retires on the proceeds of your one great investment, the truth of the matter is that a lot of value is created over time by the processes that you put in place, and the things you do to make the star investments succeed."

The cliché version of the venture capital strategy goes something like this: entrepreneur has idea, needs money; venture capitalist invests money; company forms, product is developed and is runaway success; company goes public at satisfyingly high price, enriching its founders and investors. In fact, says Davidow, life is a good deal more complex, and involves a high degree of knowing what you're dealing with.

"There are products, there are businesses, and there are institutions. Say I create the world's best widget—maybe I'm better off just selling the product or the technology to somebody else, because I don't have enough management there to move it ahead, or the market is such that I don't want to build up all the infrastructure.

"Or maybe I could create a business out of that. So I move ahead and I start manufacturing, and I create that product and I create another product and I end up with a personnel organization—and so it grows to be a business, but it doesn't have the ability to really sustain itself.

"The wonderful thing about a Hewlett-Packard or an Intel was that ultimately things got institutionalized to the point where the company was able to maintain itself in some way. You've created, then, something of real value as a result of this.

"To me, the ultimate goal of venture capital is to make a good return for your investors through creating institutions, but there are very few institutions that ever get created. It doesn't have to be an Intel, but it's got to be a company that is capable of sustaining itself, holding its employees, holding its customers, growing over an extended period of time. Dealing with changes in the market.

"Our investors give us money to earn money. You take some of these businesses, and maybe the best thing from your investors' point of view is to create a public company for them. I think that's fine, but I think that there are inherent risks in doing that, in the sense that they're so one-dimensional. They're extremely vulnerable.

"I would far rather, to the degree possible, create institutions. It's just very difficult to do that. Very few of the investments that come along have the potential to become institutions. If all you did was try to start companies that were fairly certain to become institutions, you wouldn't start any companies. And you would probably miss a few that would become institutions in the process."

He emphasizes that venture capitalists who deal with startup companies are operating from assumptions fundamentally different from those of large companies like IBM or Apple. Those companies are in a position where they can and should invest heavily in developing promising technologies—in the certain knowledge that there will be failures, and big ones. Without the Lisa, there would be no Macintosh, and so it goes. But startups rarely survive long enough to learn from their Lisa-equivalents—we're unlikely to see a New Improved Momenta any time soon.

"If I were a venture capitalist and you told me, 'We'd like to start a company, and we're going to spend $10 million developing the first product, and the probability is 20% that that's going to be successful.

Continued on page 275

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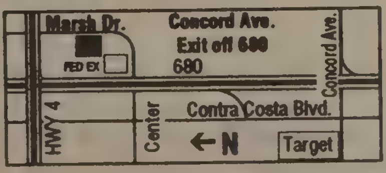

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Dun & Bradstreet Seeks Infotech Investments

D&B Enterprises President Dennis Sisco On Creating The Best Of Both Worlds

BY MARY EISENHART

For quite some time, Dun & Bradstreet has been in the information business, and has grown and prospered through decades of changes in markets and technologies. As part of its strategy, it has its own venture capital firm, D&B Enterprises, specifically created to fund emerging businesses in the information industry—"to provide," as president Dennis Sisco explains, "Dun & Bradstreet with some fundamentally new tools for innovation in new markets."

Sisco, who's been successful in both the venture capital and entrepreneurial sides of the business, explains that the firm takes a very broad view of the concept of "information" when it looks for investment possibilities.

"Our Holy Grail would be the next great database for the twenty-first century, in the sense of content, since Dun & Bradstreet, historically, is an information content company. But that's only a small part of what we're doing. Our specific charter is to find the ways for the Dun & Bradstreet Corporation to identify high-growth, high-promise market areas, and find ways to engage with the fast-growing entrepreneurial firms that tend to populate those market spaces—without putting those companies in a $4.5 billion bear hug and squeezing all the fun and growth out of them, which is what big companies typically do when they get engaged with small companies." D&B's current investments range from Geographic Information Systems software, electronic data interchange, CD-ROM technology, and a company that specializes in earthquake risk assessment software for insurance companies.

"We have a very broad view of the marketplace," says Sisco. "We're looking for companies whose products and services reach into every nook and cranny of the information technology world. Data management products are equally important to us as data content products. Information products that support information processing and the distribution of data are very important to us. Networking innovations, operating system innovations—we have a great interest in software that will make the ability to do truly distributed information processing and retrieval a reality."

While D&B likes to invest at an early stage of the company's evolution, and prefers to be the lead investor or share that role with one other firm, it is most attracted by companies past their infancy—those with a product either fully developed and shipping, or at least well along the development cycle. This, however, is not carved in stone. Says Sisco, "We are interested in getting involved with companies as early as helping to formulate the business premise, through very late-stage established companies. The investment interest we have ranges all the way from seed financing to buy-out financing."

While it might be expected that a venture firm that's a subsidiary of a multibillion-dollar corporation might have the primary goal of bringing its portfolio companies under the parental umbrella, this is only one of several strategies for D&B. Sisco explains, "It really is going to be a function of the company, the marketplace that it's in, and the conditions over time. We want to let the marketplace speak. We don't, for instance, go in with requirements for options down the line, or we don't try to get entrepreneurs to agree up front that they will sell to us and only us down the line.

"We're very flexible, and I think as we look at the portfolio, five or ten years from now, we'll find a representation of situations where companies have gone public, where they've been sold wholly or partially to other companies, and where Dun & Bradstreet has either made significant additional investment or has bought the companies outright. It really is a function of what makes sense for the combination of the venture fund and the management of the company."

So, as "information" grows to cover everything from academic courseware to consumer entertainment to sober business databases to flashy multimedia, what sort of content is D&B looking for in its info-investments?

"We don't really care," answers Sisco. "The specific content of the information product is a lot less important to us than the quality of the management team behind the business idea, and the robustness and growth profile for the marketplace it's serving."

And how should the entrepreneur who thinks D&B is just the place to go money-shopping approach the firm?

"Once they have their thoughts organized and can articulate what they want to do, the best thing to do is to pick up the telephone and approach us directly. We work very hard to put into practice the premise that our success is built on being able to understand good ideas, and we work hard not to stifle good ideas prematurely.

"There are a couple of real turnoffs for us, and I would imagine we're not very dissimilar from many other investors in this respect. It's not a good idea to approach us through brokers or third parties or slick business-plan writers. We put a high premium on what the entrepreneur thinks about, as far as his business idea and his marketplace, and his resourcefulness in bringing that to fruition. There certainly is nothing wrong with getting some expert advice and getting some help in complementing those areas where an entrepeneur might not be totally comfortable, like putting a plan together, and doing market analysis and that sort of thing, but still we're a lot more comfortable with those management teams that speak for themselves, as opposed to speaking through third parties.

"Also—this is a conclusion I've drawn over the last twenty-five years, being on all sides of this table multiple times—it's very difficult to deal with entrepreneurial teams who put the control issue right out in front of everything else. Where the first, and every nth word in the discussion, is 'I need to maintain control of my firm.' Because from our point of view, control is a secondary issue to building a successful business that serves its customers, grows at or ahead of the pace of its market, and creates wealth for its founders and its investors and its employees.

"We have no set requirements in terms of what percentage of the equity is purchased for any particular investment—that's a function of what stage the firm is at, what the risk-reward profile of the business proposition is, how much confidence you can have in the ability of the firm's management to bring off the plan, and that sort of thing.

"With regard to management, if we're dealing in a seed environment—if we're dealing with a technical entrepreneur who recognizes that he or she needs complementary skills, we're very good at helping to bring all of those skills together and get a team together. And on the other hand, that's hard work—we

Continued on page 278

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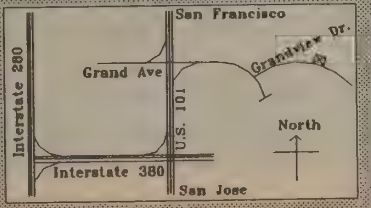

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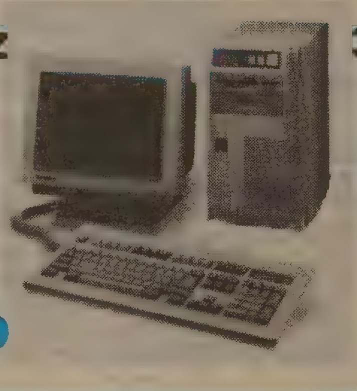

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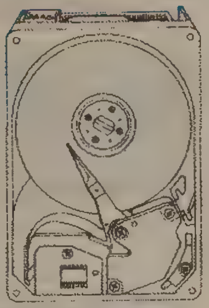

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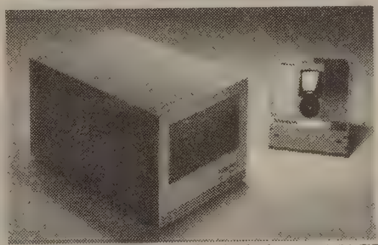

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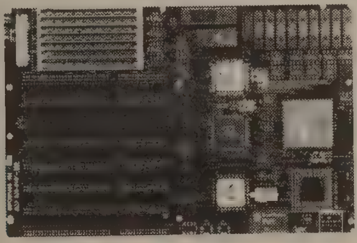

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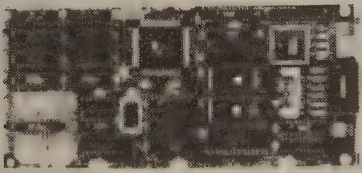

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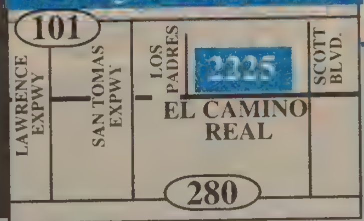

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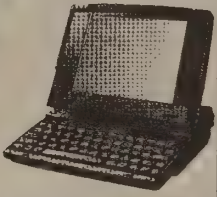

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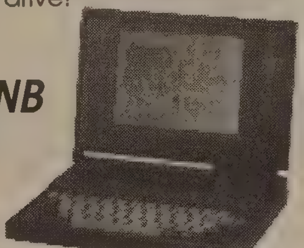
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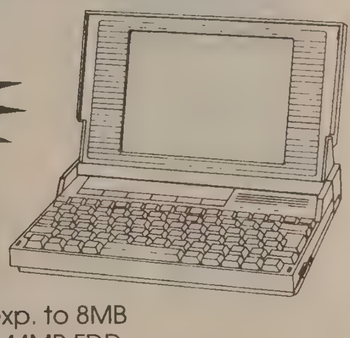

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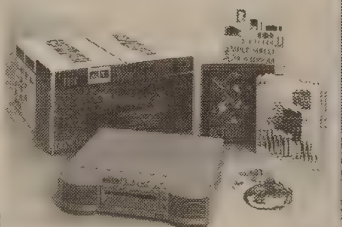

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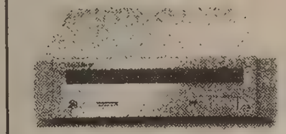

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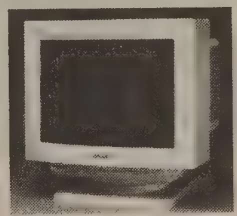

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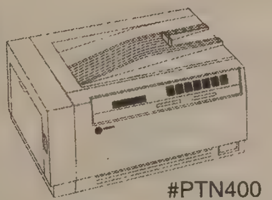

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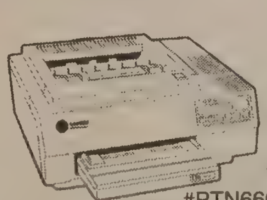

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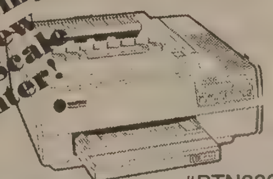

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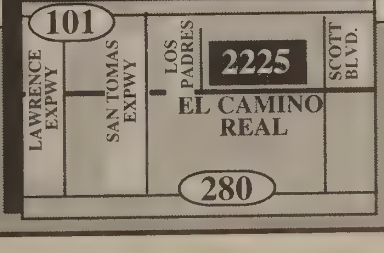

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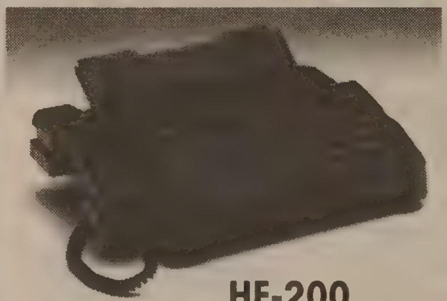

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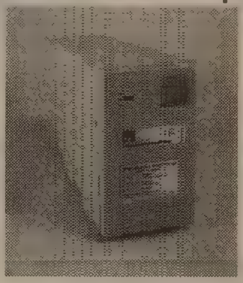

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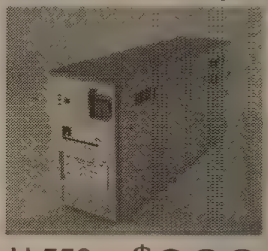

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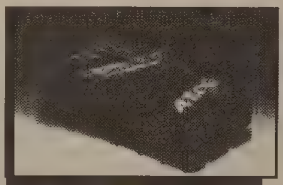

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Pocket Sized - Triple 144 Fax/Data Modem*
5" x 2-3/4" - Runs on 9V Battery
14.4Kbps Send/Receive Fax
14.4Kbps V.32bis Data
AC Adapter Included

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14.4Kbps Send/Receive Fax
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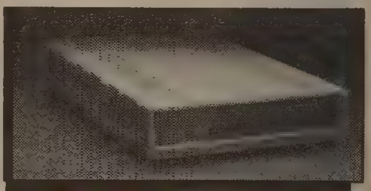
$399



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- Extended AT Command Set
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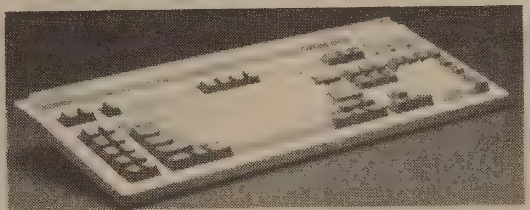

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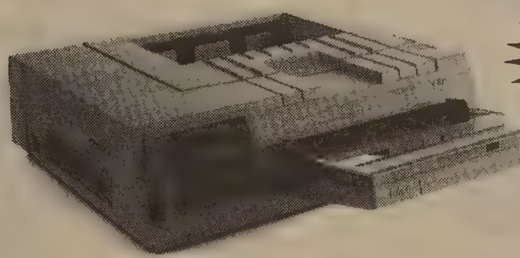

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PC Magazine® Editors' Choice.

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- Industry's best warranty: 5 years on printhead, 1 year parts/labor on printer
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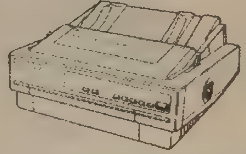

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$389

- 24-pin, 315cps
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- 2 year warranty

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Ideal for home use! Easy Operation

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- 200cps, 360x360
- 24-pin scalable LQ fonts
- 50 sheet paper cassette
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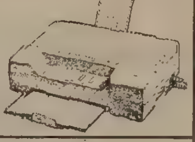

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**13 Scalable fonts!
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**Ideal for the
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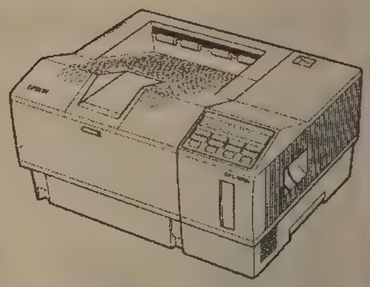

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10ppm!

- 10 ppm, **1MB RAM** exp. to 7.5
- PCL-5, 13 scalable fonts
- Includes RITech for crisper, sharper images
- **Built-In printer sharing**
- 2-year warranty

Canon

**Portable
Bubble Jet
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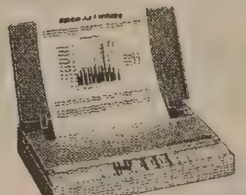

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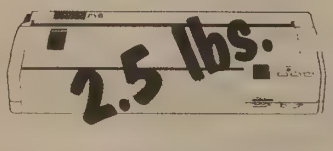

Includes Battery & case!

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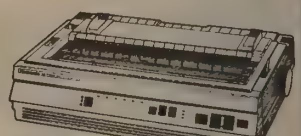

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High-Speed Letter Quality!

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- 300cps, 100cps LQ
- 8 built-in fonts
- 360x360 dpi
- 2 year warranty

SAVE $70

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24-pin printer at a 9-pin price!

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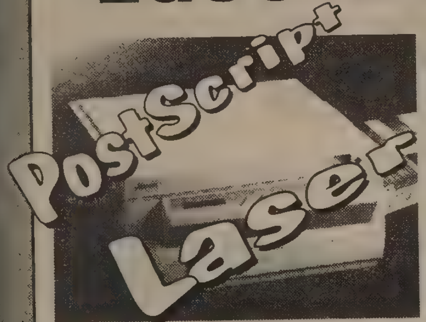

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it whispers.

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- 24-pin letter quality
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Color Option
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- 8 fonts, 360x360
- 2 year warranty

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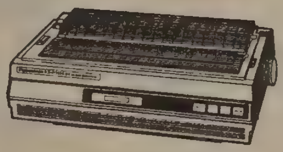

KX-P2180
- 9-pin matrix
- 192cps, 38cps NLQ
- 6NLQ fonts, (45 dBA)
- 2 year warranty

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KX-P2624
- 24-pin letter quality
- 300cps, 100cps LQ
- 11 fonts, 26K buffer
- 2 year warranty

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***FREE**
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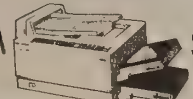
W/ Purchase of
2624, 2124, 2123,
& 2624

KX-P4455
PostScript Laser



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Envelope Tray	69
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KX-P4430
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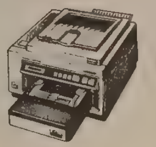

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Scalable Fonts!

- 1MB RAM exp to 5MB
- **PCL-5 Scalable**
- 300 dpi resolution • 5 PPM
- 200 sheet paper capacity

KX-P4410
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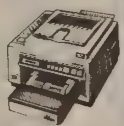

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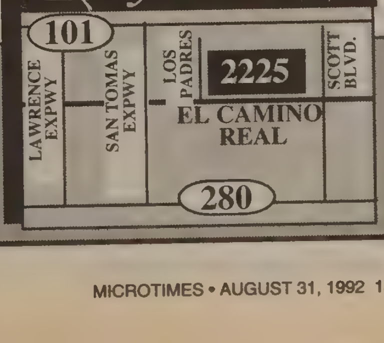

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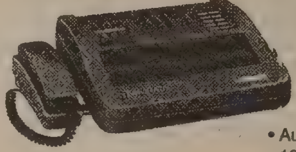

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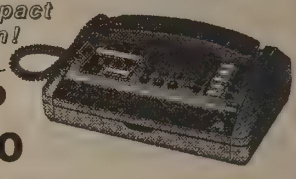
M1500

- Auto paper cutter
- 10-page auto doc feeder
- 16-level grayscale
- Stores up to 20 numbers -10 one-touch, 10 speed-dial
- Prints conformation reports

Fax, Phone & Copier For the Home

UltraCompact Design!



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M750

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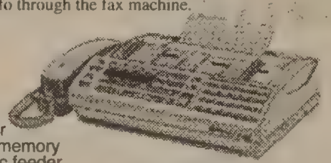
- Weights 5 1/2 lbs.
- Fine resolution mode
- Built-in, pre-recorded "voice-on-chip" prompt

A Full-Featured Fax Able to be Connected to your PC

Allows transmission & reception of computer info through the fax machine.



F-38

- Auto paper cutter
- 16-page CCITT memory
- 10-page auto doc feeder
- 16-level grayscale
- Stores up to 70 numbers -20 one-touch, 50 speed-dial
- Polling, real-time or delayed
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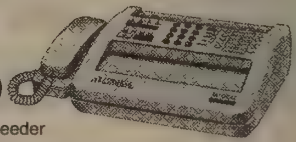

M1000

- 10-page auto doc feeder
- 16-level grayscale
- Stores up to 20 numbers -10 one-touch, 10 speed-dial
- Prints conformation reports

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Plain Paper Faxes at Affordable Prices.

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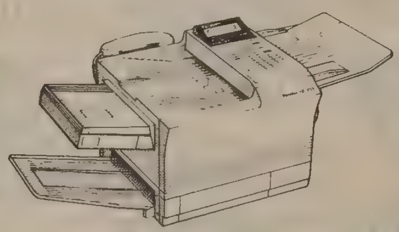

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- Time batch transmission
- Fast 3 second quick scan
- Dual Access operation
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- 64-level halftone
- And much more...

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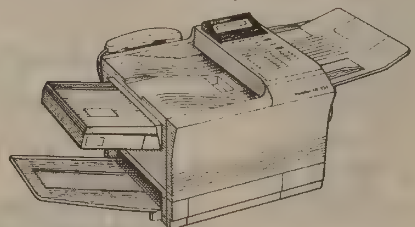

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- Fast 15 second transmission speed
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- Standard 20-page memory
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- And much more...

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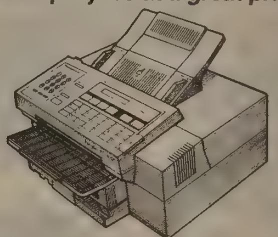

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UF-312

- High resolution 300dpi copy quality
- **Simultaneous multi-functions**
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- Extended keypad for multiple dialing features
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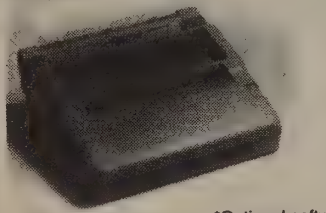

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- 10-page document feeder
- Broadcasting capability
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*Optional software package available for PC & Mac

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- 1 Battery
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- Quick Charge
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- 3 Year warranty

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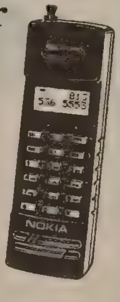

- 40 Number memory dial
- 14 Hour standby time
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Multi-scanning Super VGA Monitor

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Pocket-Size Fax Modem

100% error free transmission

Blasting modem speed up to 57,600bps

V.42bis and MNP5 data compression

World-wide fax compatibility

9600 bps send and receive fax

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14,400bps Modem/9600 Fax

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- 14,400bps modem through-put

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9600bps Modem/9600 Fax

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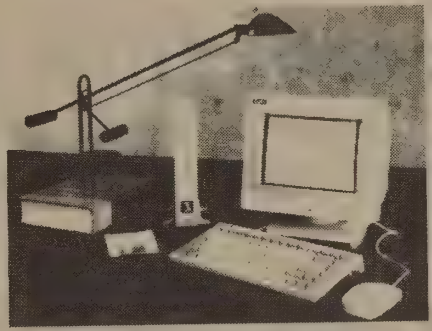
The World's First & Original Booksize Desktop Computer



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Features:	Scout	ScoutPlus
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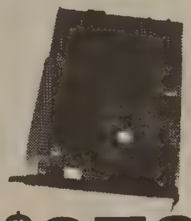
CCITT Group 3 send/receive fax		√
CCITT V.42bis/MNP5	√	√
CCITT V.42/MNP2, 3 & 4	√	√
Internal half-card w/16550 UART	√	√
External	√	√
Data communications software	Qmodem	
Warranty	5Years	



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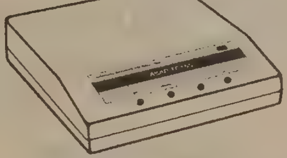

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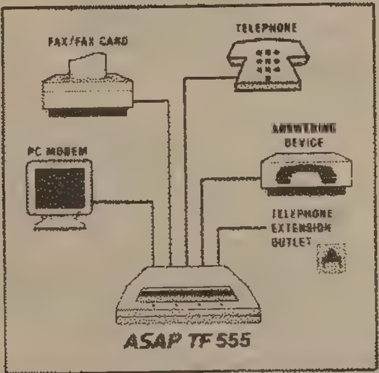

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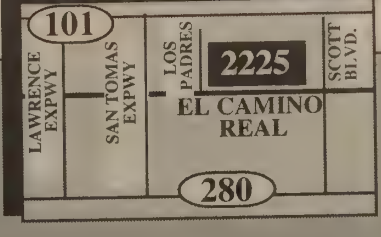

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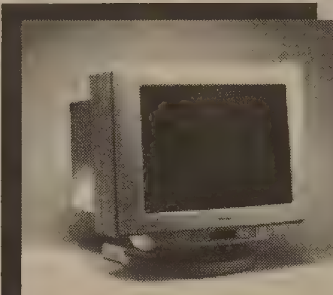

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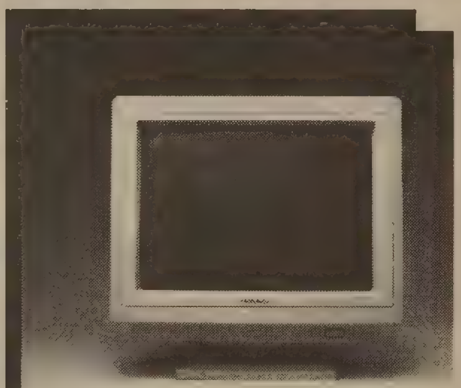

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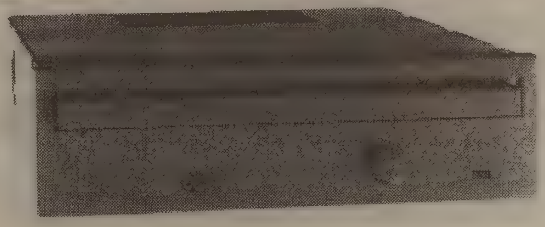

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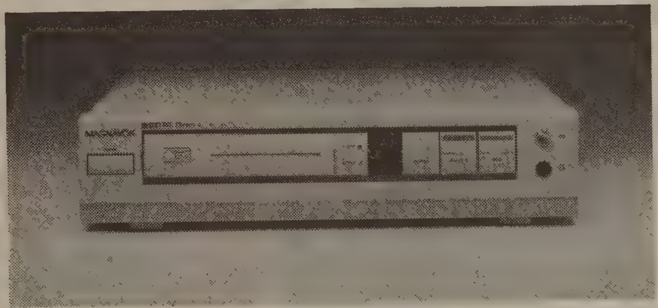

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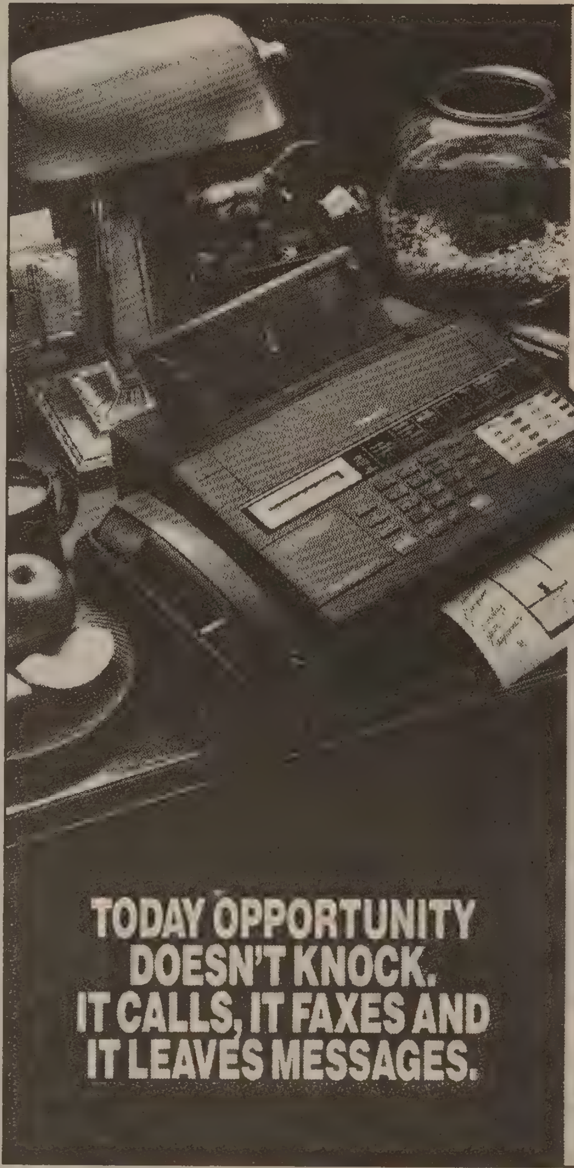

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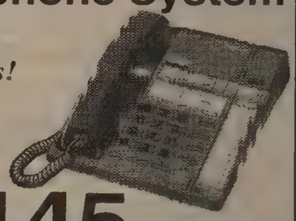

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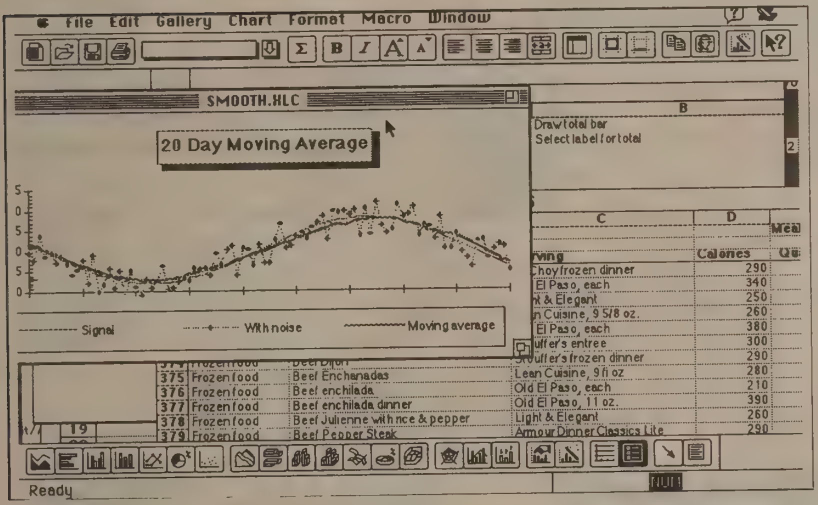
Mac Meets The Alien

Cross-Platform Adventures: File Translation And Beyond

BY MARY EISENHART

By now most of us have seen those PowerBook billboards trumpeting "Runs MS-DOS software!" And indeed, Macs have been able to run PC software to some extent since the days of a long-gone product called MacChuck.



			rving	Calories
			Choy frozen dinner	290
			El Paso, each	340
			nt & Elegant	250
			n Cuisine, 9 5/8 oz.	260
			El Paso, each	380
			uffer's entree	300
			Stouffer's frozen dinner	290
375	Frozen food	Beef Enchanadas	Lean Cuisine, 9 fl oz	280
376	Frozen food	Beef enchilada	Old El Paso, each	210
377	Frozen food	Beef enchilada dinner	Old El Paso, 11 oz.	390
378	Frozen food	Beef Julienne with rice & pepper	Light & Elegant	260
379	Frozen food	Beef Pepper Steak	Armour Dinner Classics Lite	290

Making a smooth transition from several versions of Windows Excel to the Mac version, these downloaded spreadsheets were paragons of seamless interoperability.

A good many Mac users, of course, have no need to run DOS software. This is fine. But in a world where many of our colleagues hand us files on PC diskettes, where our work machine is a clone and our home machine is a Mac, where the file we just downloaded from an online service originated on a who-knows-what, running DOS on a Mac is sometimes a very useful capability.

The state of the art has come a long way since the days of MacChuck. However, as some of the following true-life incidents suggest, it's not exactly plug 'n' play yet, either.

A LITTLE FILE SWAPPING

Not long ago I was at a conference, taking notes on the PowerBook 170. Sitting next to me was a guy from IBM, with a PS/2 notebook computer running OS/2. The discussion turned to the FBI's Digital Telephony bill, which my neighbor thought was pretty scary.

"No kidding," I said, calling it up on the Mac's screen, since I'd downloaded the bill's text earlier, and pointing out a few of its more ominous provisions. He wanted a copy. We figured Microsoft Word was the likely format to travel well, so (from MacWrite II) I saved the document in PC Word format, to a PC-formatted floppy currently in the PowerBook's drive. Which, when ejected from the PowerBook and loaded into the PS/2, brought the Word file up quite nicely.

In order to move files from an application in one environment to another, you don't really need to run DOS at all. Most applications these days come with a fairly adequate range of file translators and recognize not only their own other-platform formats, but those of their competitors. Of course, you have to get the file to where your Macintosh can see it, and, in its native state, it won't read the PC floppy. If the file you want is on a BBS or a network server, this is no problem. If it's on a diskette, this is a major nuisance.

Historically, before System 7, this function was handled in limited fashion by Apple File Exchange, which came with the System software. Once within the AFE application, you could insert a PC diskette, view a list of its contents, and have the files "translated" to Mac format. Another option, considerably more sophisticated, was MacLink Plus from DataViz, which not only provided translators for most common applications on Mac and PC platforms, it allowed you to cable your Mac to your PC and run one from the other, should you need to do file transfer on a more massive scale.

MacLink Plus is alive and well, but Apple File Exchange was not carried over into System 7 (though some frustrated souls continued to use it without problems under 7 for lack of other options). Recently Apple shipped a new utility, Macintosh PC Exchange, which allows SuperDrive-equipped Macs running System 7 to view, copy, rename, and translate files on PC disks from the Mac desktop. If you've got Lotus for Mac on your hard drive, you can double-click the icon for a Lotus PC file, and 1-2-3 will launch. You can also format high- or low-density DOS diskettes from the SuperDrive.

YOU LOVE YOUR MAC, BUT YOU ALSO NEED TO REFER PRETTY CONSTANTLY TO TEN-YEAR-OLD BUSINESS RECORDS KEPT IN A CUSTOM PROGRAM, WRITTEN FOR AN ORIGINAL IBM PC.

Similar capabilities and more are provided by AccessPC, a utility from Insignia Solutions, which also publishes SoftAT. I've been using Access PC for a few months now, and, as the preceding tale of file transfer attests, it makes life much more convenient.

If you exchange files on disk with PC-using colleagues, you owe it to yourself to get one of these products (since there is some difference in which formats each supports, check to make sure that the application you're likely to use is among them). They will pay for themselves almost immediately in improved productivity and reduced pain and suffering.

ACTUALLY RUNNING DOS

As noted earlier, for simple file exchange, where you don't need to actually run DOS applications on the Macintosh, you also don't need to run DOS at all. These days file translators are doing the job nicely. But sometimes you *do* need to run DOS—for instance, you love your Mac, but you also need to refer pretty constantly to ten-year-old business records kept in a custom program, written for an original IBM PC.

This is the situation SoftPC and its Mac II-

RESOURCES:

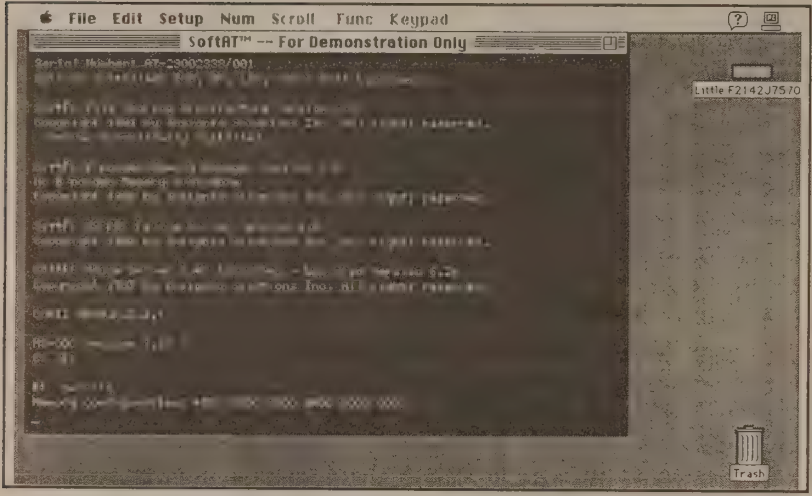
Macintosh/PC Exchange, $79
Apple Computer
(408)996-1010

AccessPC, $99.95
SoftAT, $499
Insignia Solutions
1-800-844-7677
(415)694-7600

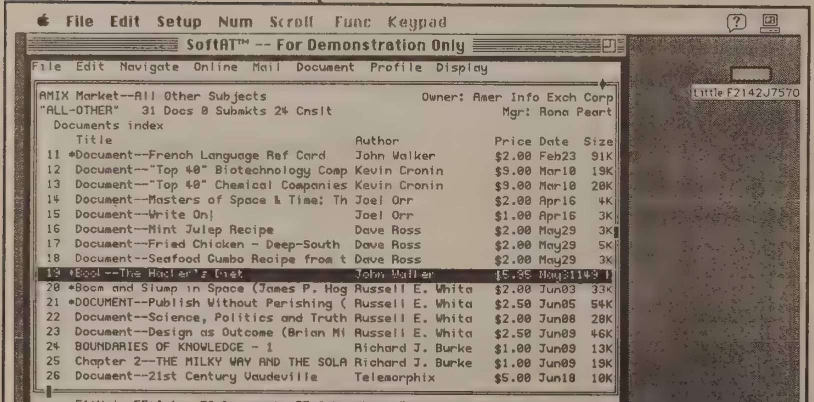
MacLinkPlus/PC, $199
DataViz
(203)268-0030

AMIX
(415)903-1000

and-above sibling SoftAT were made for. Particularly for PowerBook users (who can't use some of the hardware alternatives available to desktop Mac users), these programs provide a useful and affordable solution.


File Edit Setup Num Scroll Func Keypad
SoftAT™ -- For Demonstration Only
Little F2142J7570
Trash

With SoftAT's network drive capability and AccessPC's ability to make PC disks desktop-visible, you can view your shared files in Mac and PC formats simultaneously.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SoftAT™ -- For Demonstration Only
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"ALL-OTHER"   31 Docs 0 Submkts 24 Cnslt                    Mgr: Rona Peart
 Documents index
   Title                                Author             Price Date  Size
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Mon Jul20  4:41pm PDT    MEISENHART                                   Offline
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Even at this early stage in its evolution, material available on AMIX spans a wide range of interests.

SoftAT, which is what I'm using on the 170, emulates an 80286 machine. It requires you to set aside a predetermined portion of your Mac's hard disk as a virtual C drive—which, on the original 170's 40MB disk, can involve some agonizing decisions if it's the only Mac you're using. But once you've got it properly loaded, you can double-click its icon from the Mac desktop and be plunged into the world of MS-DOS 3.3, and can load your applications from DOS floppies in the Mac drive (which SoftAT is smart enough to recognize as A).

SoftAT also offers the very handy option of letting you create "network drives," areas on your Mac desktop where you can place both Mac and PC files and access them from both environments. This not only makes it easier to move the files around from the Finder, it enables you to accommodate files larger than your DOS partition (as long as you've got disk space), should you find you miscalculated when you set it up.

However, a few caveats are in order. If what you really need is a fast, SuperVGA 486, SoftAT is not for you. It produces the functional equivalent of a slow 286 with an EGA display, won't run applications that require more than a megabyte of RAM, etc. If you need to run DOS applications all day long and speed is of the essence, avoid emulators and get the real thing. If you need to run Windows 3.1, abandon all thought of doing it on a Mac, at least for now.

If you need to occasionally run an application that exists only in DOS, and that application will run on a 286, SoftAT is an option you should strongly consider.

ADVENTURES IN AMIX

In my particular case, I've been using a Mac quite happily for about seven years without the slightest need to run DOS applications. File conversion is an ongoing process, but most of the applications I use are sufficiently up-to-date and popular that they translate other vendors' files without much hassle. MacWrite can open a WordPerfect file if it has to, FileMaker can import and export dBASE files should the need arise, etc.

And then along came AMIX.

We'll be writing more about AMIX in the months to come. It's just now coming out of its "market-building" phase, a sort of synthesis of late beta test and shelf-stocking; the software is still a little buggy. Perhaps its least ready-for-prime-time quality, as quite a few of us brokenhearted Mac users have pointed out to its long-suffering programmers, is the lack of a Macintosh version, which, they assure us, is due Real Soon Now.

Right now, it's DOS or nothing. But, the AMIXes offered, if you sign on now using the DOS version, we'll put you on the beta test list for the Mac version... So I went for it, and for the last couple of months have been running AMIX under SoftAT on the Mac.

AMIX, short for American Information Exchange, is an innovation among online services—a marketplace in which (unlike on Prodigy or America Online, for instance) any user can be both buyer and seller, any form of digitized information may be bought and sold or consulting arrangements negotiated, and the service itself handles the requisite billings and payments. As spokesman Marc Stiegler is fond of putting it, it's the only online service that sends *you* a check at the end of the month—assuming, of course, that you sell more than you buy.

Its "markets" tend to be at an early stage of development, but the available services range from programming to copyediting. Currently offered digital merchandise includes Smalltalk code, science fiction, nanotechnology articles (Eric Drexler's *Engines of Creation* is downloadable for ten bucks, should you need it digital instead of paperback), and fried chicken recipes.

The possibilities, particularly if you've got a product or service targeted at a niche market, seem endless. As the AMIX press release puts it:

"AMIX has the potential for dramatically increasing the amount of high-quality, timely, relevant information available to those who need it. Unlike a publisher, AMIX does not appoint a small pool of official 'experts' on any particular topic. Instead, AMIX makes it possible for anyone with relevant expertise or data to offer it for sale in a competitive arena. Unlike other online services, AMIX enables real business transactions between individuals by enabling money to flow from buyers to sellers. On AMIX, information entrepreneurs, competition, and market forces work together to benefit the information consumer."

As you might suspect, keeping track of all this is a formidable programming challenge. The AMIX software itself is large and complex, and really wants at least a 386 to run on, though a stripped-down version, AMIX-LE, runs in 640K on SoftAT's virtual 286. This is far better than no AMIX at all, but because of the huge speed penalty of emulators, it's very slow, and can't handle some tasks—notably large downloads—at all.

As a result, when I've needed to download a large file, I've discovered the hard way that the best way to deal with the problem is to copy my entire AMIX directory to PC-formatted floppies using the AccessPC/SoftAT combination, load it onto a friend's 386 (where the software runs *much* faster and is far less subject to unexpected disconnections), and

Continued on page 280

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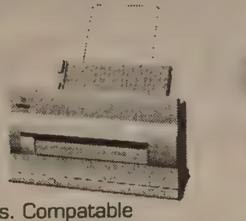

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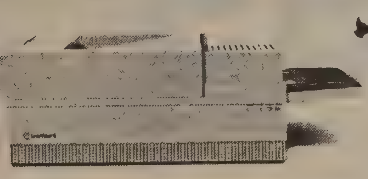

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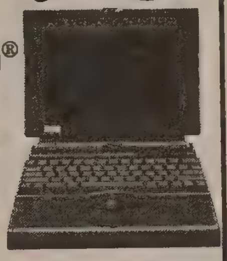

The Powerbook™ features built-in networking and sound, and runs virtually all Macintosh® software. 4 MB RAM, 40 MB HD.

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Apple® 15" Portrait Monitor

The Apple® Macintosh® Portrait Display is a high-resolution 15-inch monochrome display for the modular Macintosh personal computer family. It's ideal for work with desktop publishing, word processing, and general productivity applications because it can display one full 8 1/2 x 11-inch page of text and graphics. The Apple Macintosh Portrait Display shows a complete page of information as it will appear in print. This makes it easy to preview and edit documents and add text or graphics; it also minimizes scrolling. 15" Apple® Portrait 600 x 870

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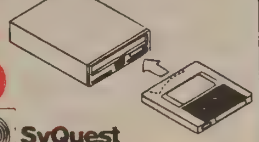

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SyQuest

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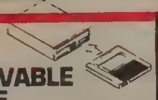
SyQuest 88MB REMOVABLE HARD DRIVE



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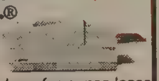

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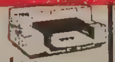

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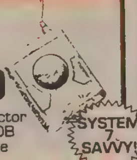

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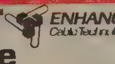

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For Mac SE,SE30,Mac II

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Ultrascript is a software program that allows you to print Postscript documents on virtually any Dot Matrix, Ink Jet , or LaserPrinter. Print documents from any application that supports color and black and white postscript printers. It comes with 25 type faces.

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MAC #1702987

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This program is designed to exploit the Macintosh computing environment to the fullest. It is compatible with 1-2-3 files and can directly read and write Microsoft Excel files. You can do in-cell editing and customize your desktop.

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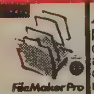
MAC #1637809

FileMaker Pro



FileMaker Pro is the #1 data base manager for the MAC. It lets you create as many files as you need to organize your information.

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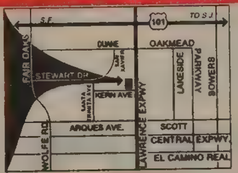

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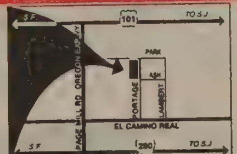

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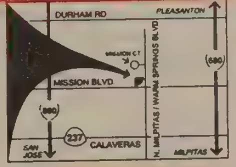

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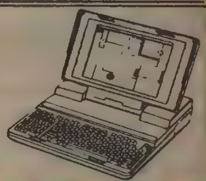

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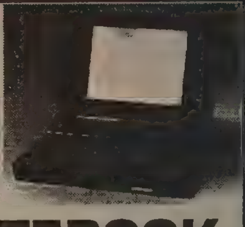

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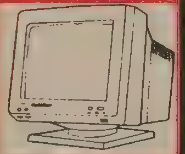

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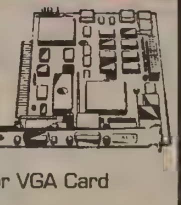

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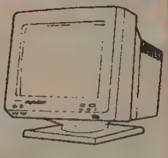

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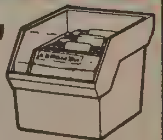

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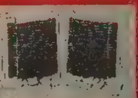

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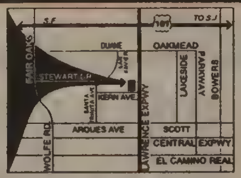
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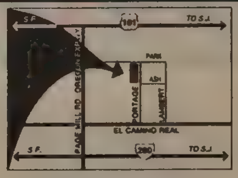
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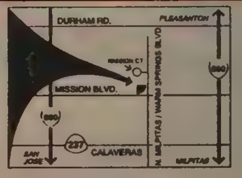
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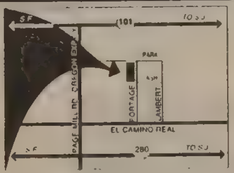
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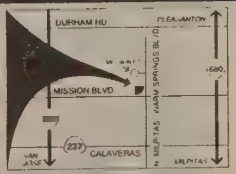
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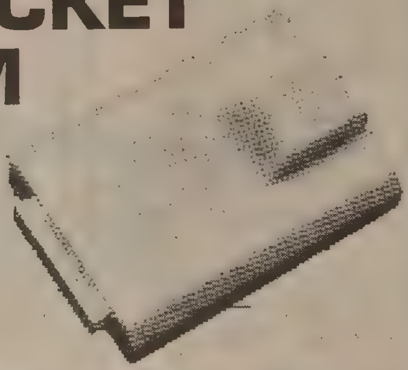

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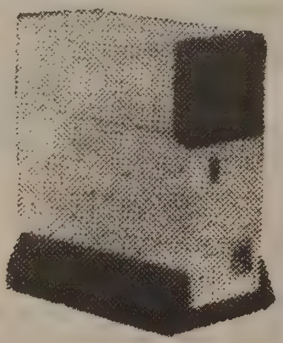

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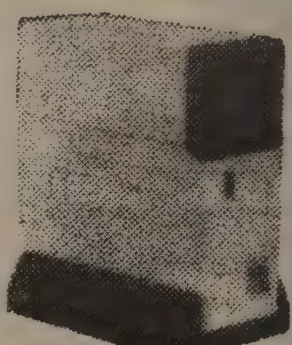

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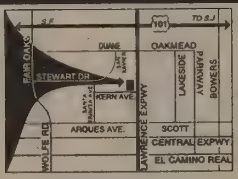
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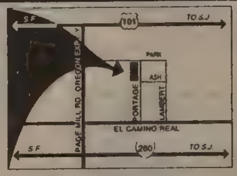
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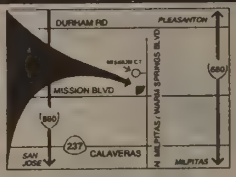
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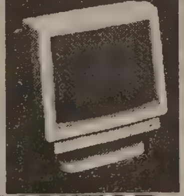

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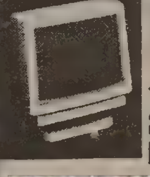

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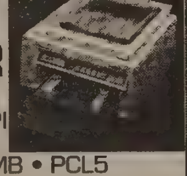

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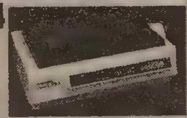

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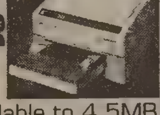

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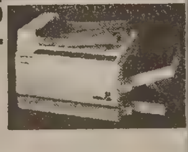

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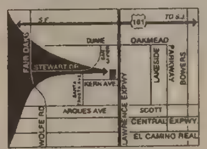
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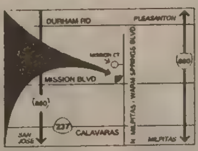
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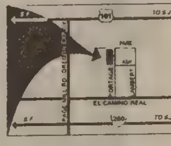
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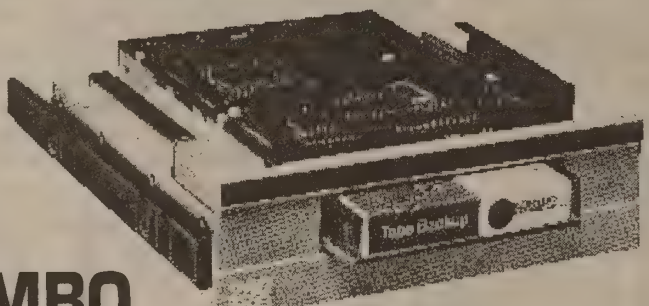

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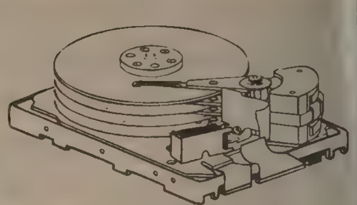

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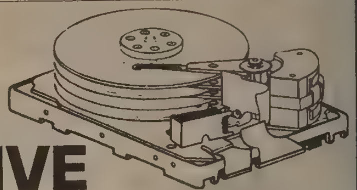

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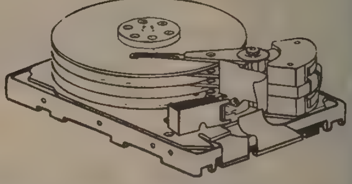

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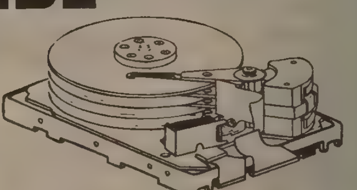

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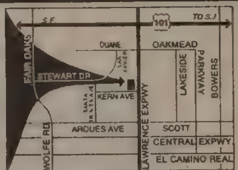
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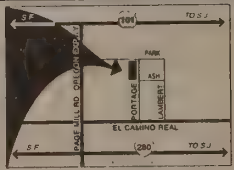
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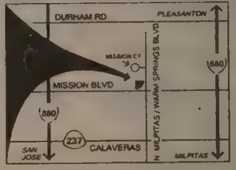
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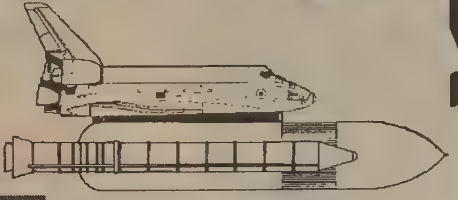

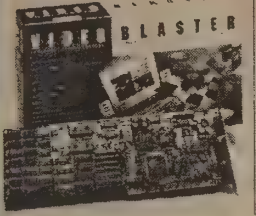

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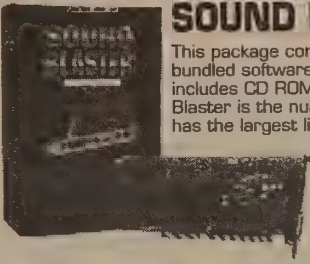

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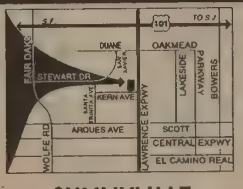
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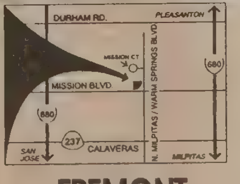
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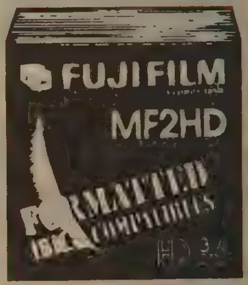
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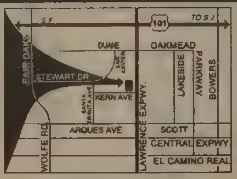
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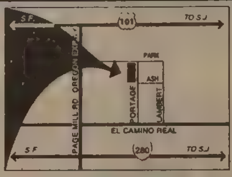
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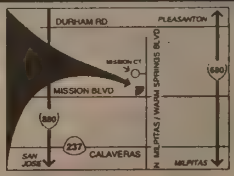
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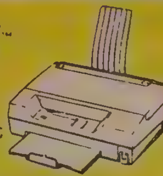

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50 Sheet Paper Cassette Tray • Quiet ESC/P2 Control Language • Simple Control Panel • Two Year Warranty

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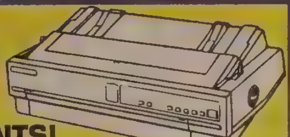

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80 Column • 252 CPS Draft Mode
84 CPS Letter Quality
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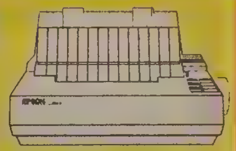

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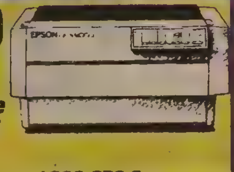

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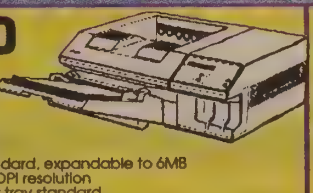

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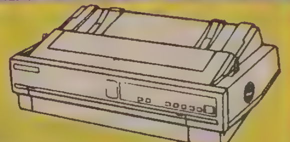
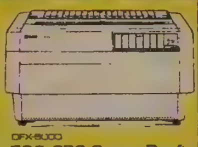


136 Column • 11 Fonts
2 Scalable Fonts • 315 CPS Draft Mode 105 CPS NLQ Mode #1620186

$389

DFX-5000



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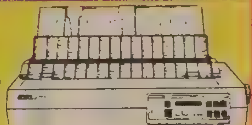

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400 CPS Draft • 133 CPS Letter Quality • 136 Column • High Speed Superb Letter Quality. Highest quality 24-pin technology for superior high resolution text and graphics. Prints in seven colors. Smartpak lets you handle fanfold paper single sheets, envelopes and forms. Selects printer setting. Smartpak operations and page-format pre-sets. LCD select type front control panal. Prints 400 CPS Draft. 133 CPS Letter Quality • one year limited warranty.

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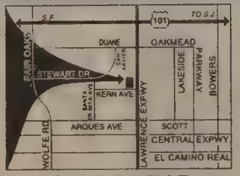

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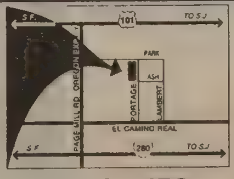

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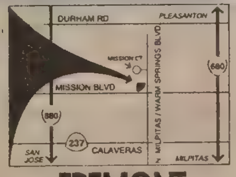

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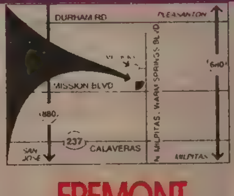

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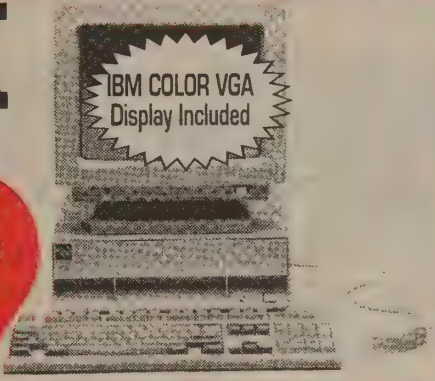
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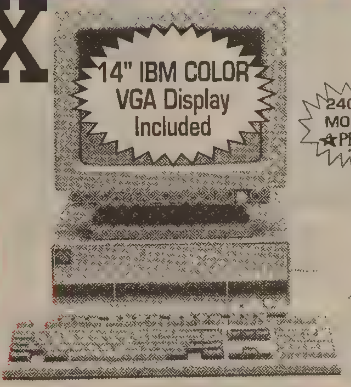
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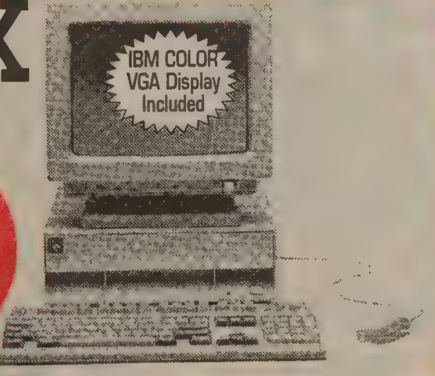
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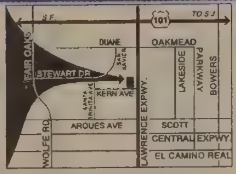
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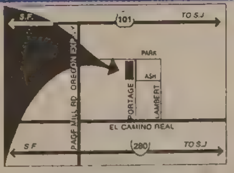
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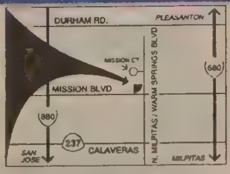
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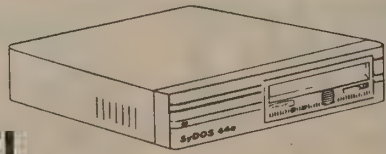

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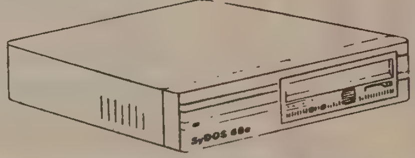

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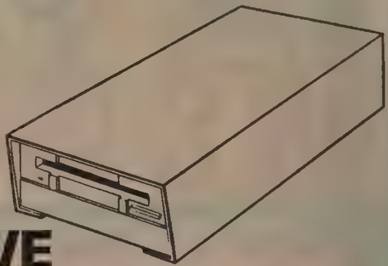

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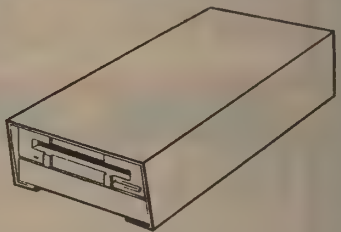

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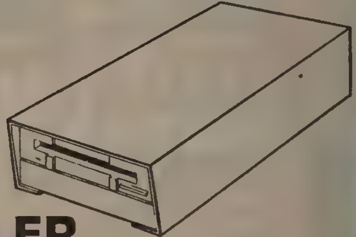

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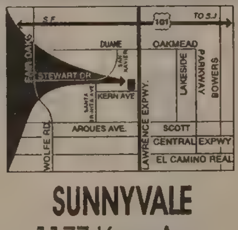
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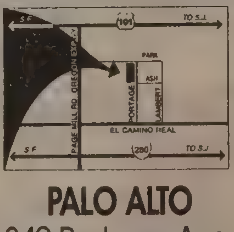
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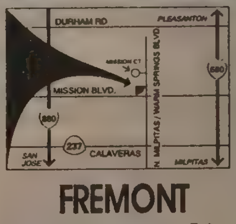
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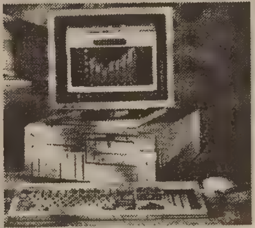

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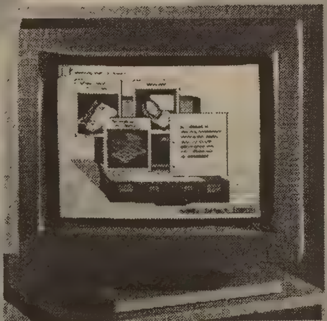

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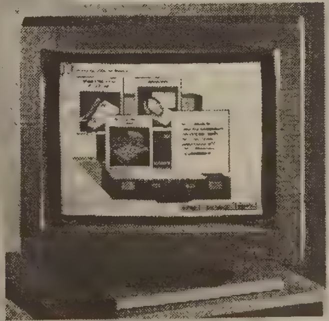

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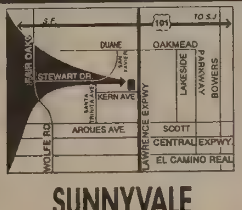
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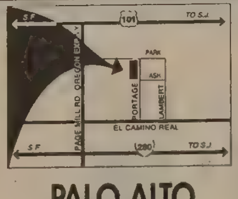
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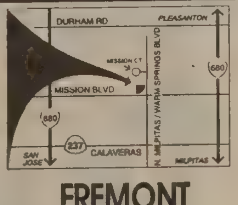
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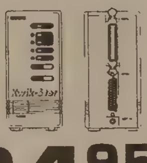

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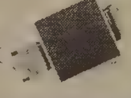

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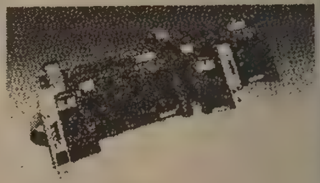

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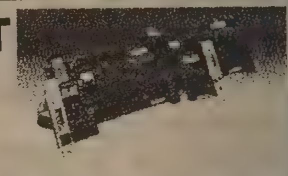

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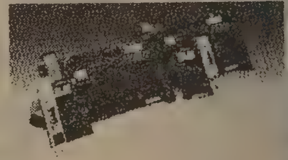

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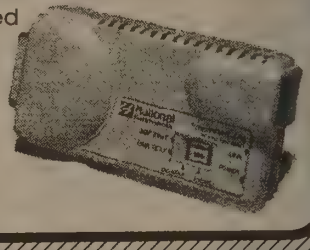

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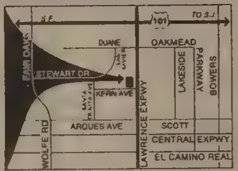
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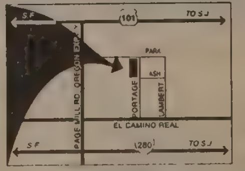
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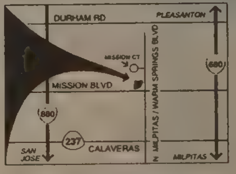
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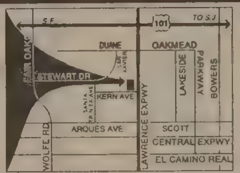
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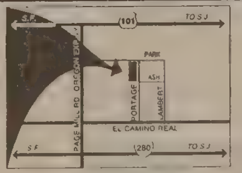
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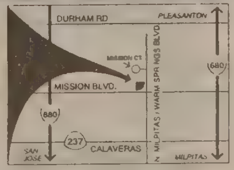
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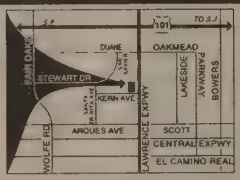
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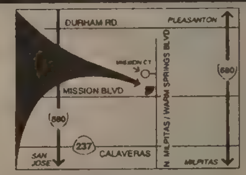
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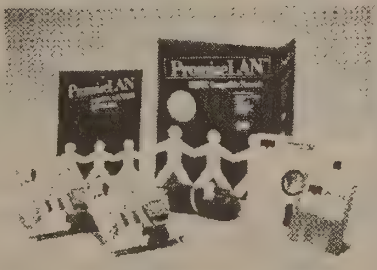

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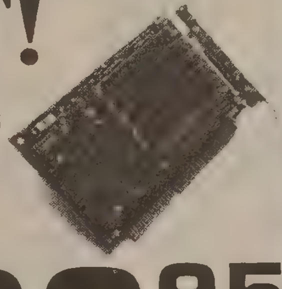

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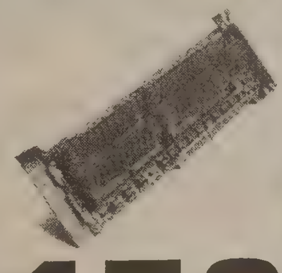

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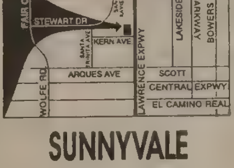
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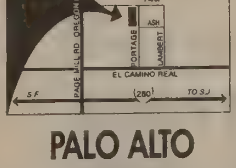
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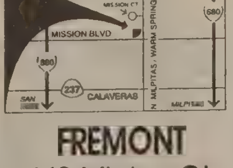
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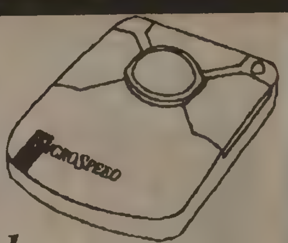
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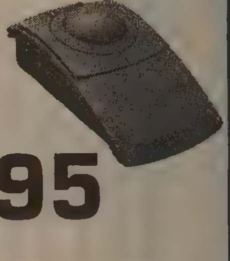

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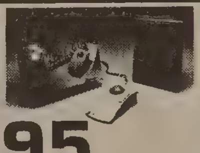

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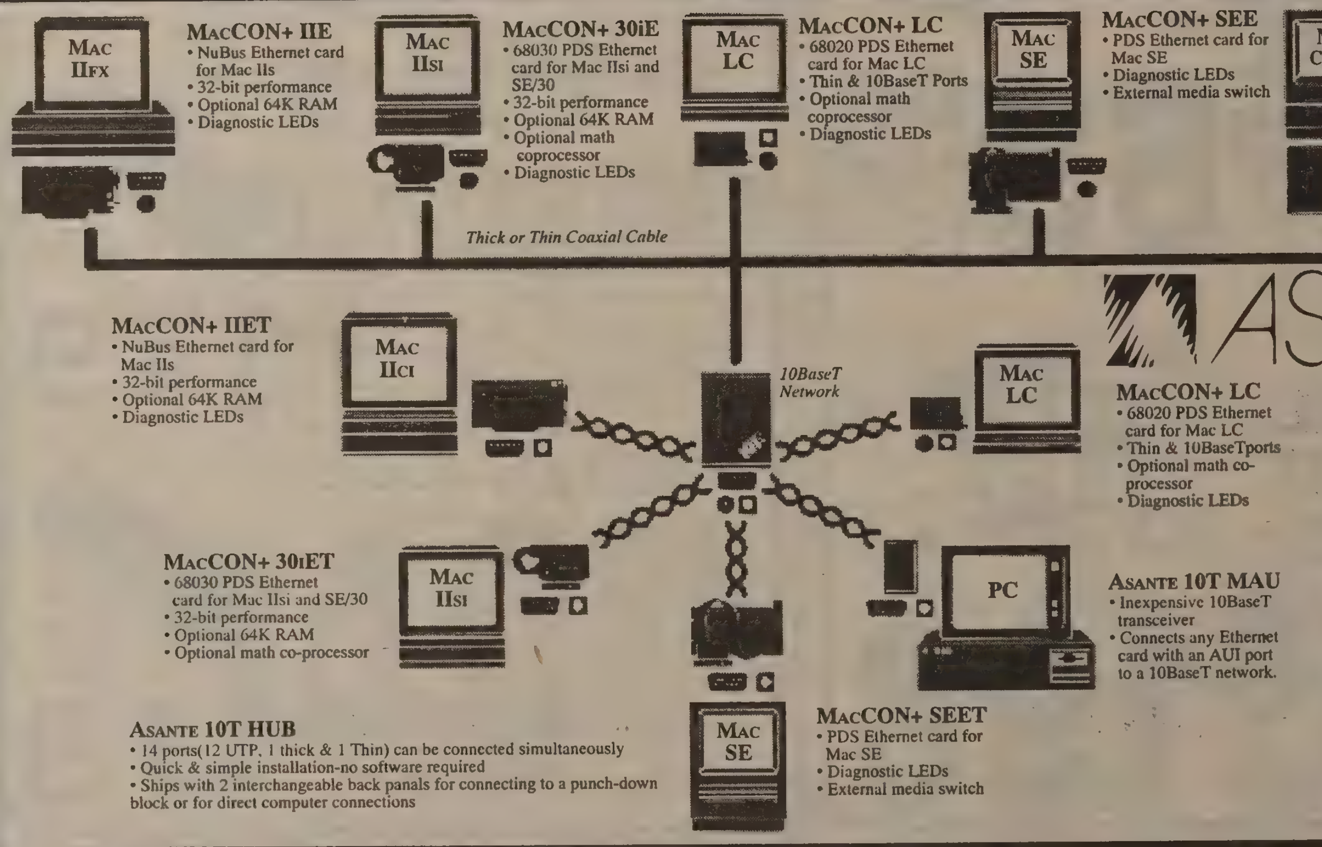
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- Optional 64K RAM
- Diagnostic LEDs

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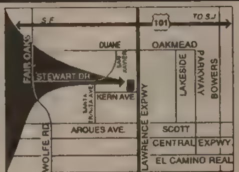
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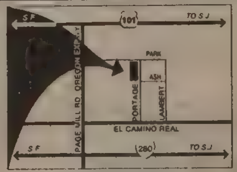
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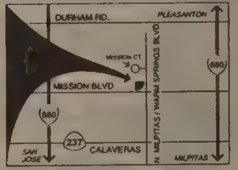
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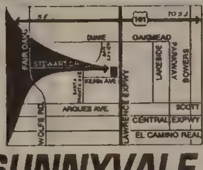

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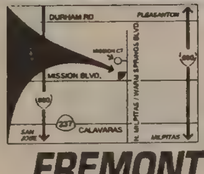

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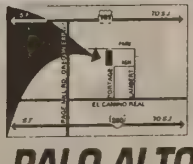

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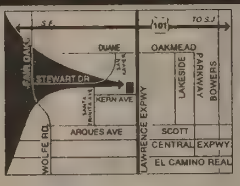

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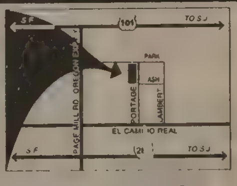

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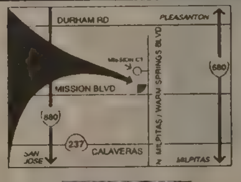

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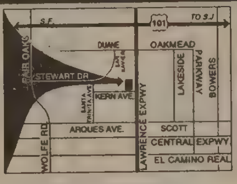

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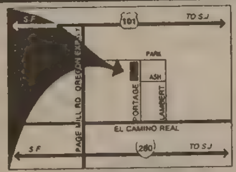

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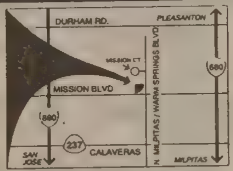

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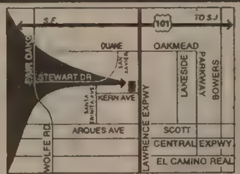

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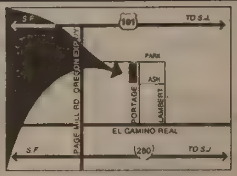

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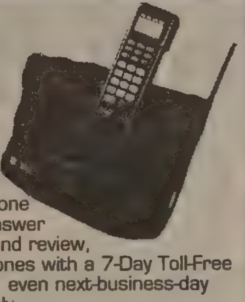

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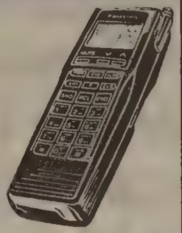

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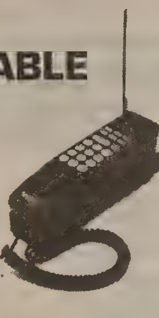

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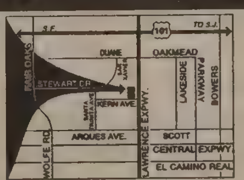

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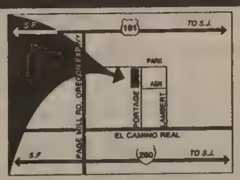

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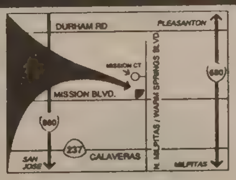

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Amiga On Novell Networks

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Amiga users have several networking options, including a slow but inexpensive method that uses the parallel port. In fact, many people connect CDTV units to their Amigas in this manner.

However, since December 1991, through a special licensing agreement with Novell, Oxxi Inc. has been shipping Amiga Client Software (ACS), which brings the de facto PC standard, Novell NetWare, and access to the largest installed base of networks to the Amiga. Amiga computers can now connect as clients on Novell networks, providing the ability to easily share files with both MS-DOS and Macintosh computers.

NETWARE WITH AMIGA ENHANCEMENTS

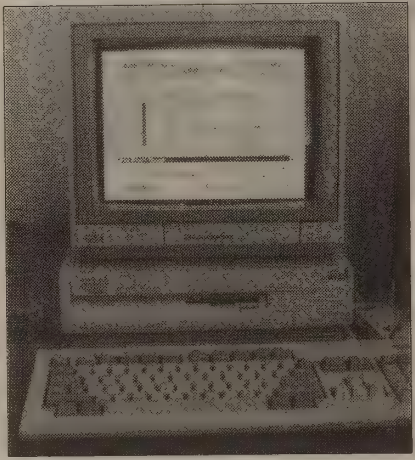
At Oxxi's Long Beach headquarters, its president, John Houston, gave me a tour of the ACS product, using an Amiga 3000 connected to several PC fileservers.

Though based on specifications provided by Novell, the ACS code was written from the ground up for the Amiga. All of the program screens have the AmigaDOS 2.0 look, with pop-up windows that explode—*a la* Mac—onto the screen. (ACS runs under either AmigaDOS 1.3 or 2.0.)

Despite the appearance of the screen, users familiar with the various MS-DOS network administration programs will feel right at home with the Amiga counterparts. For example, Oxxi has gone to great lengths to keep keystroke compatibility and to make the Amiga versions function as closely as possible to the MS-DOS versions, adding features only when there was a clear need.

However, the advantages of the Amiga's graphical user interface cannot be overlooked. Where in the MS-DOS version you might have to press the cursor key several times before the proper menu item is highlighted, the Amiga version requires a simple click on the item. ACS is a full implementation of NetWare, and includes functions such as file management and security, printer definition, print-job control, network accounting, password security, and login script definitions.

Using Amiga Client Software, Amiga computers can now connect as clients on Novell networks, providing the ability to easily share files with both MS-DOS and Macintosh computers.



To log onto the network using an Amiga, you click on the appropriately named icon, Login. A window will appear, and you'll see the login script execute. This is nearly exactly what you would see if you logged in using an MS-DOS machine.

One difference between the two platforms is that the DOS Capture command has no counterpart on the Amiga. Basically, MS-DOS computers need the Capture command because most programs cannot print directly to the network printer port. Capture is a memory-resident program that redirects program output to the network printer port.

On the Amiga, printer settings are handled through the Amiga preference settings. Normally, you can only select parallel or serial for the printer port, but Oxxi provides a modification that adds a network item to the printer port selection.

A very nice feature is ACS's ability to reset all preferences on the fly. In addition to printer selection, preferences also cover things like mouse pointer design, workbench colors, etc. Every person who logs in can have different Amiga preferences, without rebooting the machine.

Oxxi has significantly improved the Novell messaging system. Messages are basically single-line notes that are sent to other network stations. On the PC side, messages are normally sent using either the Session utility or the Send command. The Send command is executed at a DOS prompt and is very limited, since you must know the exact name of the station or group you're sending the message to. The Session utility allows you to select the destination using a menu. The receiving station displays the message at the bottom of the screen. At this point, the computer locks up until you press Control-Enter, which clears the message.

On the Amiga, a special message program sleeps on the Workbench. If a message is sent to your station, the task wakes up and shows you the message, along with the time it was sent. A running list of all of the messages received is saved in its message window. This window automatically resizes when you drag the screen up or down, another interesting trick which I hadn't seen before.

If you need to reply to the last message, you simply enter your reply message into the input gadget and select Reply from the pull-down menu. As with the PC Session utility, you can also select the destination of your message using menus. Of course, received messages don't lock up the Amiga, since the operating system is multitasking.

Normally, hard disks have a little activity light on them to let you know when the disk is being accessed. In many cases, networks act as not much more than a huge shared hard drive. Unfortunately, you normally can't tell when the network resources are being accessed...unless you are using an Amiga. The message program has a network activity light. This flashes when there is any network I/O.

ACS also includes an Amiga specific program called ResToData. This utility will copy the resource fork of a Macintosh file to a data

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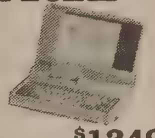

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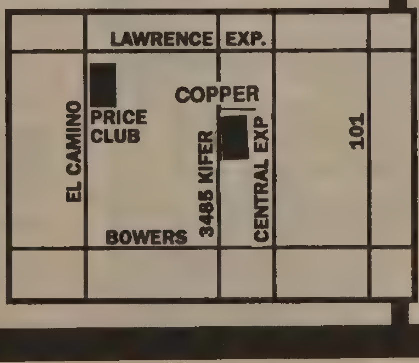

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Note that 99% of the time, the network fileserver is an MS-DOS computer. This presents an interesting problem since the Amiga supports 32-character file and directory names using spaces, and upper and lowercase letters. The ACS network is able to internally work with and retain the Amiga naming convention and use a unique and legal translation on the PC side. Consider two Amiga drawers (subdirectories) called AmigaMagicPrograms and Amiga Magic Programs Data. If you did a directory listing on a PC, these drawers would appear as AmigaMa0 and AmigaMa1.

This is certainly a limitation when accessing Amiga data on a PC, but obviously unavoidable. Even though the system automatically fixes the problem, Oxxi recommends that naming conventions be implemented that place the unique part of the name at the beginning. In other words, think about the implications on the PC side before you name a file. This will yield more meaningful PC file and directory names.

When you log off the network, you must have already exited from all applications that either came from or used the network. If one of these programs is still running, you will not be allowed to log off, rather like trying to exit from Windows while a DOS application is still running.

Networks are great for resource sharing. You could hook a multitude of Amigas, PCs, and Macs to a single laser printer. Storage efficiency can also be increased. Instead of every computer having its own hard disk, you can add large drives to the fileserver. This also speeds up backups and minimizes related headaches, since only the fileserver has to be backed up. Often, other peripherals, such as scanners, hard drives, and CD-ROM units, are less expensive for PCs as well. These could be added to the fileserver and accessed directly or indirectly by the Amiga.

The file-sharing capability, perhaps used in conjunction with something like ASDG's Art Department Professional to change file formats, opens exciting new possibilities for a multiplatform network. Houston says, for instance, that ACS is popular on networks that include Video Toasters.

In order to use ACS to connect your Amiga and PC, you must, of course, have the networking hardware and software that allow your PC to act as the fileserver.

Novell network administrators might find it helpful to add an Amiga to their networks just to do maintenance and station setups. The Amiga's preemptive multitasking operating system makes network administration a very easy task, since all the necessary programs can run simultaneously. Additionally, Amiga directory utility programs, which are light years ahead of any available for the PC, could be used for file maintenance.

I use a Novell network on a daily basis and felt right at home using the Amiga version. All of the standard utilities that execute at a DOS prompt are available using the Amiga CLI. For the screen-based programs, like Syscon, the PC keystroke implementation is dead on, but adapting to the more efficient mouse point and click is a breeze.

Arcnet and/or Ethernet cards are available from various companies including Commodore. One company even offers an Ethernet card for the Amiga 500! (Contact

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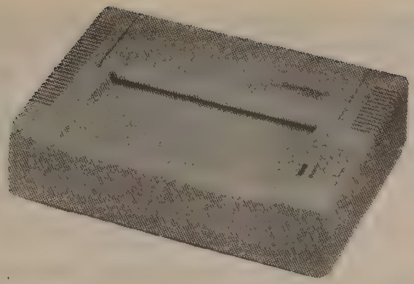

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Oxxi for a list of these companies.) ACS ships with drivers for all known network cards.

OTHER NEWS FROM OXXI

While I was at Oxxi, Gary Bonham gave me a detailed look at two products he was programming for Oxxi: Presentation Master and Video Stage. Presentation Master is a shipping product while Video Stage should be released by the time you read this. Gary is the inventor of the Anim format and the one who wrote Showanim, one of the great IFF animation players.

Presentation Master is going to be a very important product for the Amiga. As you might gather from the title, it is a presentation authoring program. You can make presentations using structured drawings, IFF pictures, business charts and graphs, and 3-D title and text rendering. Presentation Master works internally with 24-bit color. The slides I saw from its color PostScript output matched anything I'd seen from any platform. Presentation Master can generate truly professional-level presentation slides. For 24-bit high-resolution display, the program supports DMI's Resolver board. It also supports Adobe Illustrator clip art. The structured drawing editor is phenomenal.

Video Stage is also a presentation-type program, but it is designed to run on an Amiga 500, though it obviously would run on other Amigas as well. Bonham called it a cross between VideoTitler and Lights!Camera!Action!, two products from Oxxi's Aegis Development division. Video Stage is capable of doing some beautiful screen transitions—sixty of them. Words can fly onto the page all at one time or letter by letter. Buttons and hot spots are also supported. It works as a powerful slide show maker. This program could easily be used for video titling and full presentations where 24-bit color is not needed. We'll take an in-depth look at Presentation Master and Video Stage in the future.

Oxxi will also be releasing a network version of its database program SuperBase. The PC version of SuperBase is sold by another company; however, John Houston told me that the two companies have agreed to keep compatible file formats and data manipulation languages, except for unavoidable platform differences.■

World Of Commodore Amiga

Don't miss the World of Commodore Amiga show, which will be held September 11—13 at the Pasadena Hilton. This is the first time this event has been held in the Los Angeles area. Commodore will be making some important product announcements. Call (416)285-5950 for details.

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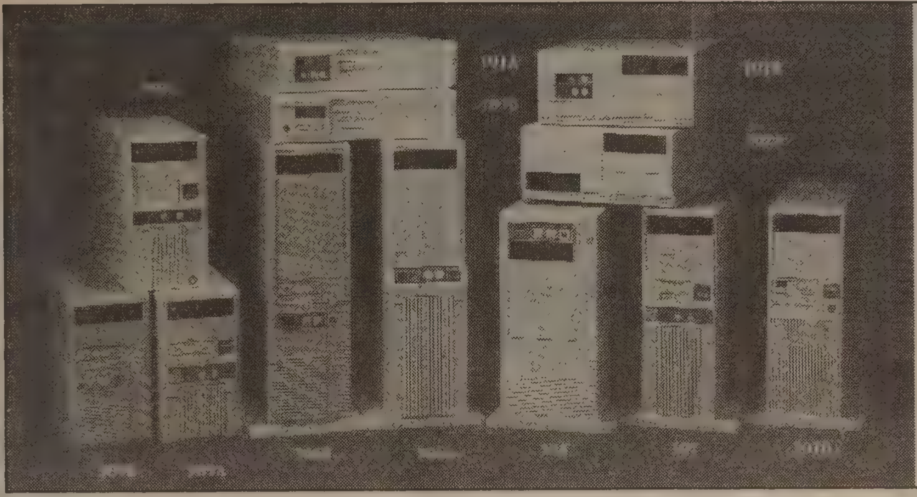

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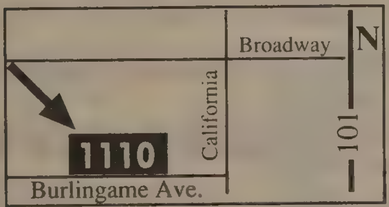

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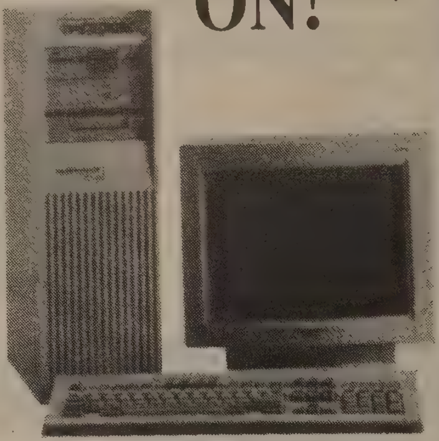

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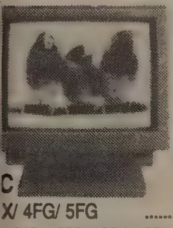

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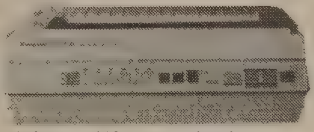

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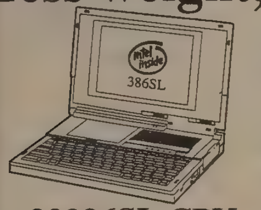

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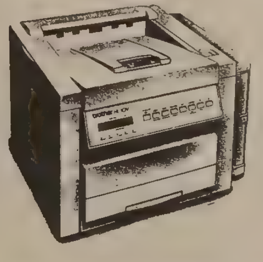

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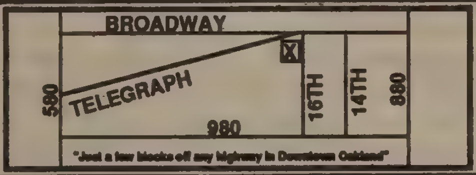

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Where Is The Computer?

Problems Of The Connected PC

BY PAUL HOFFMAN

It's often difficult to remember what it was like to be a novice computer user. After using a computer for a few months, you get used to overcoming mysteries and learning arcane commands, and you forget how hard it was to start the learning process. You get reminded sometimes when you start using a new program or operating system, but even then you find that learning new skills comes faster than those first difficult weeks starting at the screen and the keyboard.

Networking is hyped as being fairly easy, and we all know what a lie that is. If something goes wrong in the process of connecting computers, it is virtually impossible to say which computer caused the problem.

One thing people often learn in the first few years of using a PC is how to use a modem to call up other computers. Using a modem is more difficult than using other PC hardware, due to some ugly history and early standardization on cryptic hardware jargon. Once you get past the mysteries of baud, stop bits, and handshaking, you have to learn how to use the computer that you have connected to.

After using a PC for daily work such as word processing and spreadsheets, and then using a modem for online discussions and data-gathering, many people start finding the blur between their computer and the remote computer very confusing. This article discusses why that confusion is common and how to overcome it.

SIMPLER TIMES

A little more than a decade ago, most computer users sat in front of terminals, which were connected to a computer in a different room (or a different building, even a different city). The terminal was most often a "dumb terminal," meaning it didn't have a processor or much brains at all. All the intelligence was in the computer. If you were lucky, the terminal had a few features like the ability to have its screen cleared; many didn't, and were the visual equivalent of a sheet of typing paper scrolling by.

In those simpler days, if something went wrong as you ran a program, 99% of the time the problem was in "the computer." The box sitting on your desk was rarely responsible, so you could call the "computer operator" and ask him or her to fix the problem in their box. If your terminal was connected to the computer through a modem, the problem might have been a bad phone line or a faulty modem. This is why users who called into the computer with a modem were often told to try the same actions on a "local terminal": people liked to lay blame on modems.

The personal computer changed the focus of the problem. The box on your desk *is* the computer, and no other boxes are connected to it. If something goes wrong, there is no one to call to fix it: it's your computer, do it yourself. With the power of a personal computer comes the responsibility. Everybody became their own system operator. Before 1981, the number of people who understood "operating systems" was in the tens of thousands; now it is in the tens of millions. Still, when something went wrong, you knew which box to blame because there was only one.

NETWORKS AND COMPLICATIONS

The confusion came in when people started connecting computers through networks. Networking is hyped as being fairly easy, and we all know what a lie that is. If something goes wrong in the process of connecting computers, it is virtually impossible to say which computer caused the problem. In most networks, the client computers run different software from the hub of the network, so users have to decipher two kinds of error messages (if they are lucky enough to get an error message at all).

The acceptance of networks was hampered by more than just a lack of reliability. Most system administrators didn't have a problem understanding the benefits of networking or the technologies being used, but users showed a great deal of resistance. When it was just one computer, things made sense; when it was more than one, they became fuzzy. The personal computer revolution seemed a lot less personal when some of your files were kept somewhere else and you had to ask permission to prevent others from accessing them.

For many users, the hardest thing to learn was why some of their files were private and others were public. Files stored on "C:" were only theirs, although a system administrator could look at (and sometimes modify) them. Files stored on "D:" were often public: anyone had free access to them. You would work on a file on D:, come back the next morning, and it would have changed. The fact that the wire that connected them to the network also connected other machines was surprisingly difficult for many people to grasp.

DIALING INTO SOMEWHERE

Networks have become more common and more understood in the past five years, and the physical location of files and their mutability have become less crucial issues. However, the growing number of telecommuters has raised another location-based problems. If you are working on a computer at home and connected to a computer somewhere else, which one is doing the computing?

Services like CompuServe and America Online have introduced the average user to a world of information outside their computer. You can meet people, get stock quotes, look up facts, get technical questions answered, and so on, without leaving your living room. These are things that your computer by itself will not do. Subscribers to these services know that they dial into another computer, but that doesn't answer the fundamental question for many people: Where is this information now?

Assume that you have dialed into CompuServe and requested the closing price of IBM stock; on the screen, you see something like "IBM 90 1/2." In your head, you now have that information. Is it also "in" your computer? How can you tell? It is clearly in the computer "at" CompuServe, but is it in both places?

Normally, when you do something like edit a word processing file, you know what is in your computer because you open a file, and there the information is. When you have dialed into a host computer service like CompuServe, you get information without looking at files. If you opened the morning paper and looked up the value of IBM's stock, you would certainly not expect it to also magically appear in your computer. But here you are in front of your computer, and you're seeing information, yet it's not really in your computer.

No wonder many people stick to the enter-

Continued on page 258

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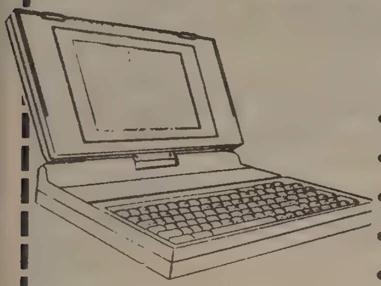

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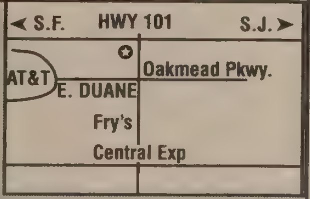

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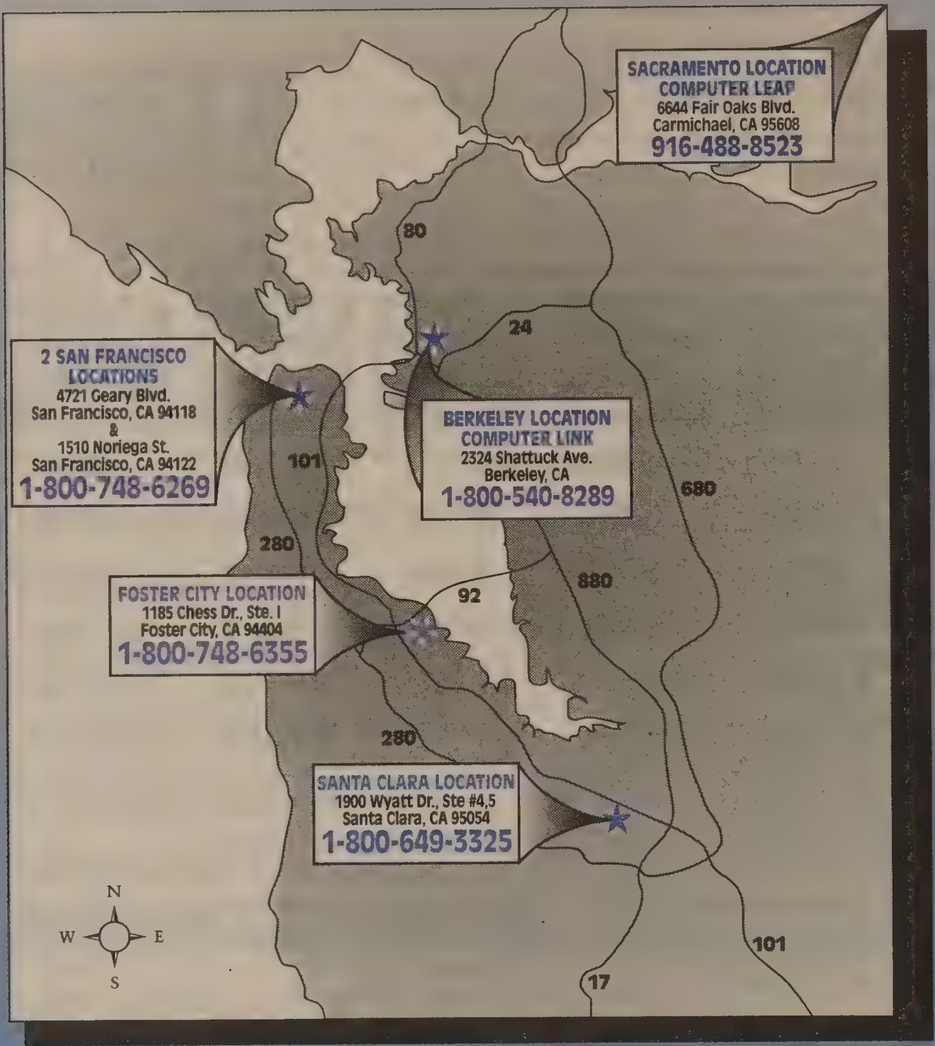

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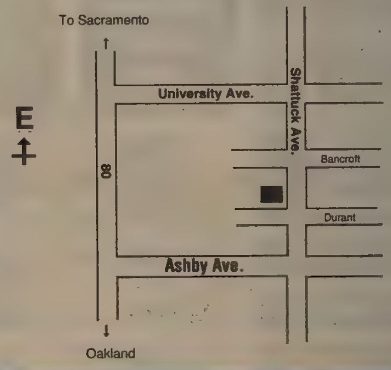

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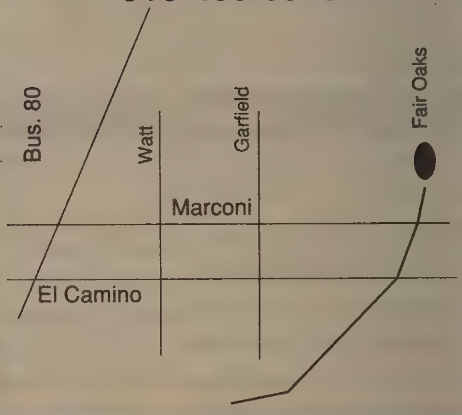

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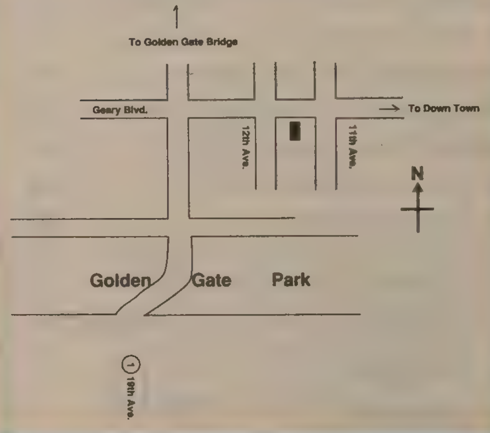

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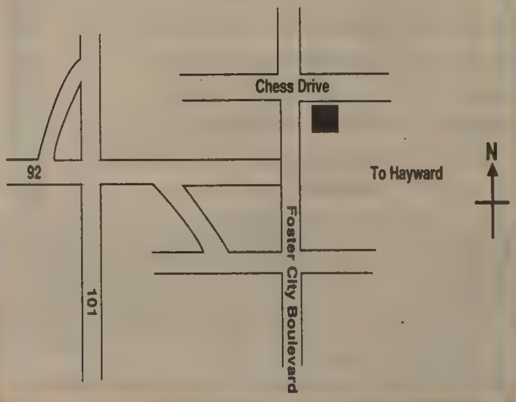

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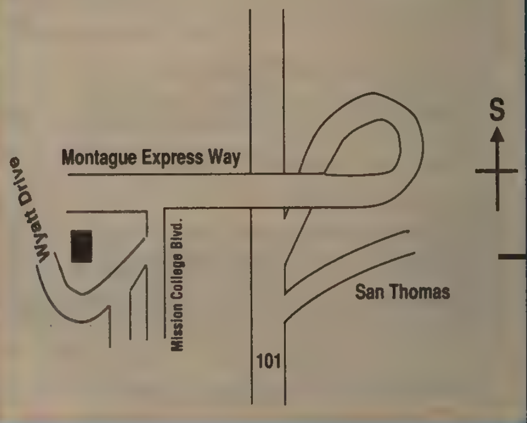

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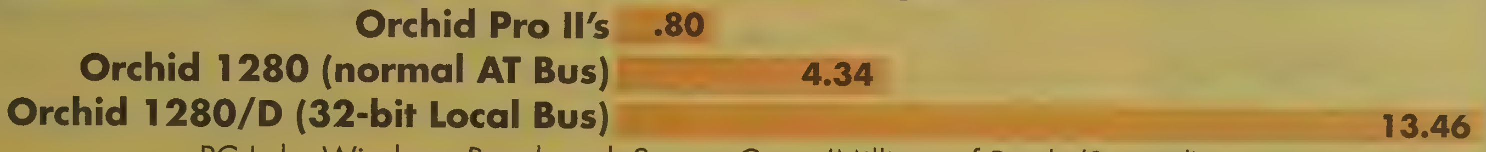

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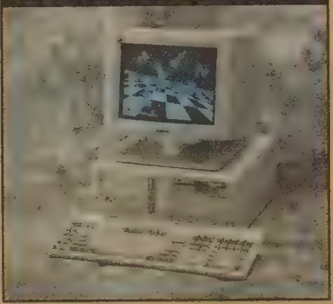

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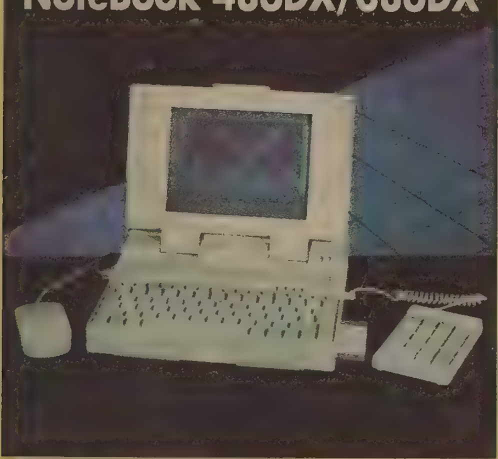

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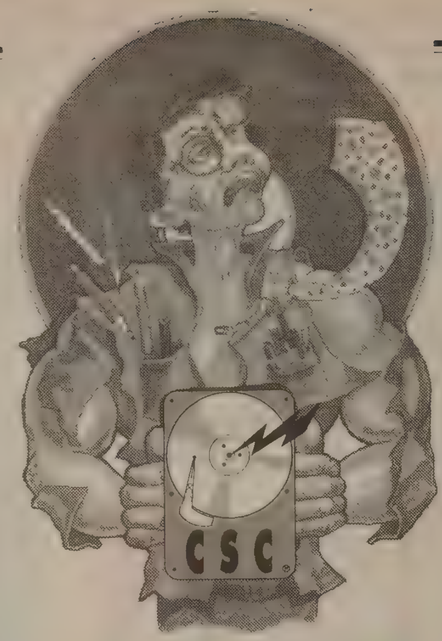

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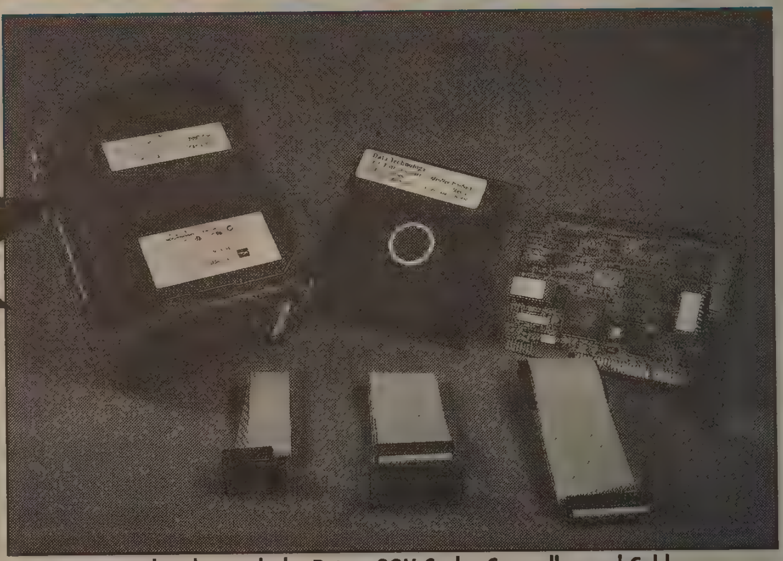

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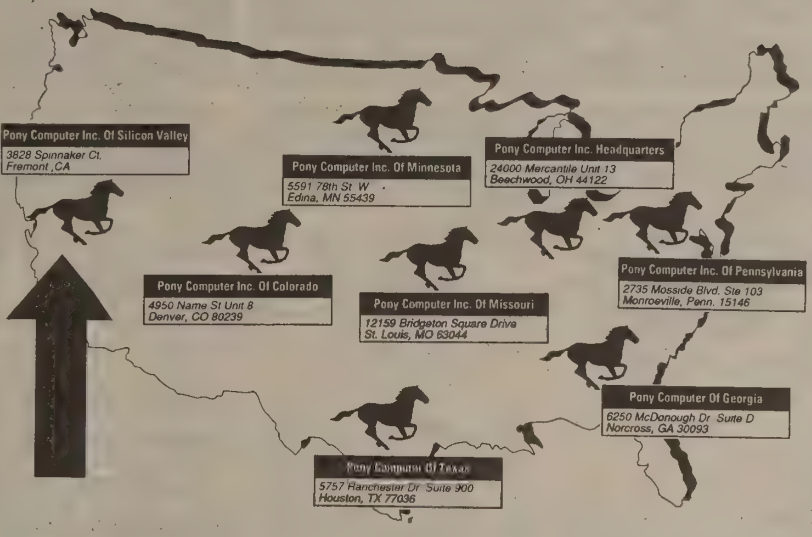
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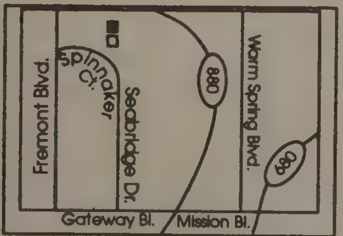
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130	SCSI 7120SR	3.5"x1"	15ms	$329
213	**IDE 7213A**	3.5"X1"	**NEW**	**$449**
340	**IDE LXT340A**	**3.5"**	**15ms**	**$739**
340	SCSI LXT340SY	3.5"	15ms	$819
535	**SCSI or IDE**	**3.5"**	**12ms**	**$Call**
670	**SCSI XT8760**	**FH**	**16ms**	**$1199**
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SIZE(MB)	TYPE/MODEL	Size	SPEED	PRICE
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84	IDE CP30080	3.5"X"1	17ms	$249
120	IDE CP30104	3.5"X1"	19ms	$299
170	**IDE CP30174E**	**3.5"X1"**	**17ms**	**$359**
213	IDE CP30204F	3.5"	16ms	$479
544	IDE CP3544	3.5"	12ms	$999
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1 YR. FACTORY WARR

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340	SCSI MC1684	HH	14ms	$1099
340	ESDI MC1664	HH	14ms	$999
670	SCSI MC1624	HH	14ms	$1299
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1.5Gb	**SCSI MC1528**	**FH**	**14ms**	**$1999**
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520	fast SCSI-2	3.5"	12ms	$1259
1.2Gb	**Fast SCSI-2**	**3.5"**	**Fast**	**$1999**
338	Wren Runner	FH	10ms	$1099
670	Wren Runner II	FH	11ms	$1449
1.2Gb	Wren 7 SCSI	FH	14ms	$1669
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400	C2235	HH	12ms	$1149
310	C2234	HH	12ms	$1039
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1.6GB	C97560	FH	13ms	$2349
2.3GB	C3010	FH	11ms	$3699

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2 Yr. Factory Warr.

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240	Quantum LPS240	2Yr	Fast	$Call
320	Seagate ST4376N	1Yr	16ms	$849
338	Seagate Runner	1Yr.	10ms	$1199
340	Maxtor LXT340SY	1Yr.	15ms	$899
340	Micropolis M1684	5Yr	14ms	$1199
425	**Fujitsu M2623**	**5Yrs.**	**12ms**	**$1079**
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670	Fujitsu M2263SA	5Yrs.	16ms	$1469
670	Micropolis MC1624	5Yr	13ms	$1399
1.2Gb	**Maxtor Panther**	**2Yrs.**	**13ms**	**$1789**
1.2Gb	**Fujitsu M2266SA**	**5Yrs.**	**14ms**	**$1889**
1.2Gb	**Seagate ST41200**	**1Yr**	**15ms**	**$1869**
1.2Gb	**Micropolis MC1598**	**5Yr**	**14ms**	**$1999**
1.5Gb	Micropolis MC1528	5Yrs	14ms	$2199
1.7Gb	**Maxtor Panther**	**2Yrs.**	**13ms**	**$1999**
2.0Gb	Fujitsu M2652SA	5Yrs	11ms	$3099
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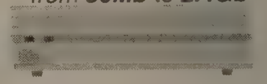
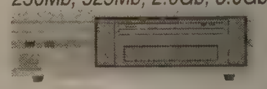
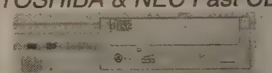


TAPE BACK-UPs
250Mb, 525Mb, 2.0Gb, 5.0Gb



CD ROMs
TOSHIBA & NEC Fast CD



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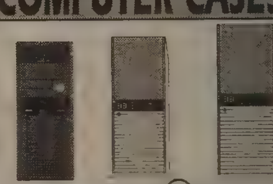
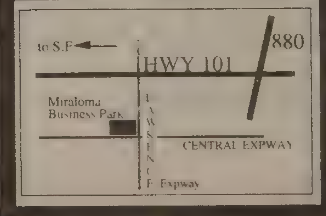
COMPUTER CASES



SELECTION & VALUE (UL) APPROVED



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1MBX9	**80ns**	**PC 3CHIP**	**$ 26**
1MBX9	70ns	PC 9CHIP	$ Call
1MBX9	70ns	PC 3CHIP	$ 27
1MBX9	60ns	PC 9CHIP	$ 32
1MBX9	60ns	PC 3CHIP	$ 29
4MBX9	**80ns**	**PC**	**$ 99**
4MBX9	70ns	PC	$107
4MBX9	60ns	PC	$116

DRAM

1X1	80ns	PC	$3.50
256	80ns	PC	$ .99
256	70ns	PC	$1.25
256X4	80ns	PC	$4.09

SIPPS

1MBX9 80ns
$30

1MBX9 60ns
$36

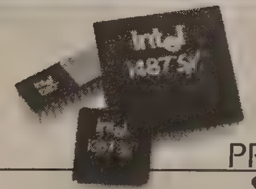
NoteBook Memory .... $Call

MAC

TYPE	SPEED	DESC	PRICE
1MBX8	80ns	new MACs	$ 25
1MBX8	**80ns**	**All MACs**	**$ 26**
1MBX8	70ns	new MACs	$ 26
1MBX8	70ns	All MACs	$ 27
2MBX8	**80ns**	**new MACs**	**$ 55**
4MBX8	**80ns**	**MAC**	**$ 96**
4MBX8	70ns	MAC	$ 98

MATH COPROCESSORS

intel



TYPE-SPEED	PRICE
80287-XL	$75
80387XLT	$84
80387SX-16	$87
80387SX-20	$87
80387SX-25	$87
80387-33	$95
80487SX-20	$Call

WEITEK

TYPE-SPEED	PRICE
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4167-33	$399

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TYPE/SPEED	PRICE
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2C87-10	$57
2C87-12	$57
2C87-20	$68
3C87SX-16	$75
3C87SX-20	$75
3C87SX-25	$75
3C87-25	$96
3C87-33	$96
3C87-40	$119

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83S87SX-20	$75
83S87SX-25	$75
83D87-16	$75
83D87-20	$75
83D87-25	$75
83D87-33	$79
83D877-40	$119

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DESC	1 UNIT	5-PACK
120/250Mb QD 2120	$19.95	$90.00
120/250Mb FORMATTED	$25.95	$120.00
1/4" TAPE 6150 150Mb	$22.95	$107.50
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1/4" TAPE 6525 525Mb	$33.95	$155.00
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1.0 GB GLASS OPTICAL	$229.00	$1045.00
44Mb SYQUEST CARTRIDGES	$67.00	$320.00
88Mb SYQUEST CARTRIDGES	$105.00-	$495.00

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50 Centronics to 50 Cent. 6ft.	$12.99
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Sun: Centronics to SCSHI	$39.00
DB50 to Centronics	$39.00
DB50 to SCSHI	$39.00
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50 Pin SCSI 3 Connectors	$5.99
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PRODUCT SPOTLIGHT

New Products

MULTIMEDIA HARDWARE

SIIG VIDEO GRABBER PLUS

Video Grabber Plus is a new multimedia add-on board for AT computers which enables users to display and capture live-action video from a variety of video input sources—including VCRs, camcorders, laser disk players, television, and Sega and Nintendo video game systems. This video card enhancement tool plugs into a standard 16-bit ISA expansion bus alongside the VGA card and connects to the VGA card through its feature connector. Included free with Video Grabber Plus are Video Notebook multimedia authoring software, a pair of audio speakers, and Grabber software for Windows. ($495) SIIG, Inc., 6078 Stewart Ave., Fremont, CA 94538-3152. (510)657-8688.

NVIEW LUMINATOR LCD PROJECTOR

The Luminator is an LCD data/video projector that provides superb computer and video images from nearly any source, including PC and Macintosh computers, VCRs, laser disk players, and camcorders. The projector, which incorporates a patented design for a self-contained LCD projection device, contains a single, active-matrix, thin file transistor (TFT) LCD and projects computer video and live video from up to four sources simultaneously, without complicated setup. It also incorporates a powerful 400W metal-halide lamp to generate brightness which rivals that of 3-gun CRT projectors. ($11,995) nVIEW Corp. Omni Blvd., Newport News, VA 23606 (804)873-1354.

Continued

PRODUCT UPDATES

➤**Alias Research** announced **Alias Sketch 1.5**, the newest version of its free-form 3-D illustration and design software for Macintosh computers. The upgrade will cost $25. Alias Research, Inc., 110 Richmond St. E., Toronto, Canada M5C 1P1. 1-800-447-2542.

➤**CE Software** released **QuicKeys 2.1.2**, which includes Instant QuicKeys, QK Icons, and seven new logic extensions. CE Software, Inc., 1801 Industrial Cr., PO Box 65580 W. Des Moines, IA 50265. (515)244-1995. AOL: CESOFTWARE.

➤**Central Point Software** is shipping **Central Point Anti-Virus 1.3**, which now detects and eliminates more than 1200 viruses. Central Point Software, Inc., 15220 N.W. Greenbrier Pkwy., #200, Beaverton, OR 97006. (503)690-8090.

➤**Dantz** is shipping **DiskFit Pro 1.1**. Dantz will ship a free upgrade to all registered owners of DiskFit Pro 1.0. In addition, Dantz is offering to upgrade SuperMac DiskFit customers to Dantz DiskFit Pro for $29.95. Dantz Development Corp., 1400 Shattuck Ave., Suite 1, Berkeley, CA 94709. (510)849-0293.

➤**NEC** announced through December 31, 1992, current owners of **NEC InterSect CDR-73 external, CDR-83 internal**, and **CDR-36 portable CD-ROM readers** can upgrade their readers' performance and multimedia capabilities through the **NEC Technologies CD-ROM Reader Enhancement Program**. NEC Technologies, Inc., 1255 Michael Dr., Wood Dale, IL 90191. (708)860-9500.

➤**Peachtree Software** is shipping **Peachtree Complete III, v6.0** This upgrade encompasses three Peachtree DOS products: Peachtree Basic Accounting, Peachtree Complete Accounting, and Peachtree Complete Accounting, Multi-User version. Peachtree Software, Inc., 1505 Pavilion Pl., Norcross, GA 30093. (404)564-5800.

➤**Rupp Technology** invites all unregistered owners of **FastLynx** to call and register—no questions asked. Unregistered end-users will be eligible for a special upgrade offer to the recently released v2.0. Rupp Technology Corp., 7285 Franklin Ave., Los Angeles, CA 90046. 1-800-852-RUPP.

➤**SCO** is shipping **SCO Open Desktop Release 2.0**, the latest version of its integrated advanced operating environment for industry-standard 386/486 desktop workstations and multifunctional servers. The Santa Cruz Operation, Inc., 400 Encinal St., PO Box 1900, Santa Cruz, CA 95061. (408)425-7222.

➤**WordStar** released **WordStar for Windows 1.5**. An introductory price of $119 is good until at least the end of 1992. WordStar International, Inc., 201 Alameda Del Prado, Novato, CA 94949. (415)382-8000.

MEMORY UPGRADES

LASER PRINTER MEMORY

	1M	2M	4M
HP LaserJet IIP,IIP+,III,IIID,IIIP	74	105	175
HP LaserJet II,IID	80	115	185
HP Laserjet IIIsi	68		175
HP Design Jet Plotter	68		175
HP LaserJet Fax,	78		
HP Deskjet 500/C/+(256K)	58		
Canon LBP-4,4+	175	225	
Canon LBP-8II/8IIR/8IIT		115	185
Canon LBP 8-III	175	245	280
Panasonic KX-4410/4430	100	135	205
Panasonic KX-4420/4450i	80	115	185
Panasonic KX-4450	115		
Panasonic KX-4455	103	138	
Okidata Okilaser 400	80	115	
Okidata Okilaser 800/820	94	129	199
Okidata Okilaser 810	145	189	
Okidata Okilaser 830/840	100	135	
IBM /Lexmark 4019/4019E	88	123	178
IBM/Lexmark 4029- 10/10L/6/5E	79	105	155
Epson EPL-6000	92	127	197
Epson EPL-4000,8000,Action II		125	195
Epson EPL-7000		112	147
Toshiba Pagelaser 6	92	127	197
TI Microlaser/PS	60		
TI Microlaser Turbo	95		238
Sharp JX-9500PS	60		
Sharp 9500PS,9500,9700	139	275	435
QMS-PS 410	100	135	205
QMS-815/825,825mr		157	227
Brother HL-4,/4V,/4VPS	102	137	207
Brother HL-8E/8D/8V	103	138	
NEC SilentWriter 2-90/290	102	137	
NEC SilentWriter 95		115	
Star Micronics -4,4III	115	155	235
Star Micronics 8	130	165	235
C-Tech CI-4/4+,8E	109		
C-Tech CI-8	119	199	
Seikosha OP104	109		
Seikosha OP 108	99	179	
Apple II NTX	59		185

COMPAQ MEMORY

		EQU. P/N	
LTE/286	1MB	117081-001	$79
	2MB	117081-002	119
LTE Lite/20,/25	4MB	129769-002	195
	8MB	129769-003	425
LTE386s/20	1MB	121125-001	69
	4MB	121125-002	195
SLT/286	1MB	110235-001	89
	4MB	110237-001	325
SLT386s/20	1MB	118303-001	95
	2MB	118304-001	145
	4MB	118305-001	219
DeskPro 386N, 386S/20	2MB	118689-001	115
	4MB	118690-001	185
	8MB	128877-001	359
DeskPr 386/20e ,/20, /25e	1MB	113131-001	89
	4MB	113132-001	209
D.P. 486/25/33L	2MB	115144-001	119
Sys./DeskPro	8MB	116561-001	359
Contura	2MB		120
	4MB		219
	6MB		495

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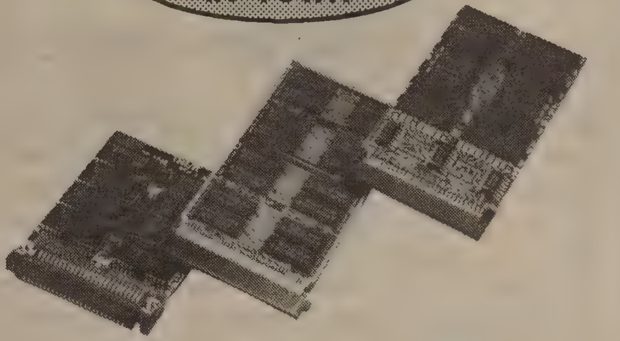

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4MB 175

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SL/20/25/25C,III
4MB $295
8MB 495

Panasonic
KX-4410/4430
2MB $135
4MB 205

Toshiba
T6400,T4400SX/SXC
4MB $299
8MB 495

Epson 4000
8000,Action II
2MB $125
4MB 195

Toshiba
T2000/SX/S/e,T2200SX
4MB $179
8MB 328

Compaq
Centura
4MB $219
6MB 495

Palmtop/Sub-Notebook SRAM

HP 95LX,,Grid Gridpad,Poqet PC,
Sharp, NCR,Grid ,DEC,IBM PC Radio
512K /1MB $128/188

Apple Powerbook 140/170
4MB $179
6MB 239

SIMM
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TOSHIBA
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1M X 36-70NS
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4M X 9-70NS
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NOTEBOOK/LAPTOP MEMORY

Panasonic CF-170/270/370	1MB	$69
TI Travelmate 2000	1MB	95
3000	2MB	85
Sharp PC-6220	1MB	95
AST Executive Notebook	4MB	138
Everex Tempo LX	2MB	85
Tempo Carrier	2MB	145
Sanyo 18NB	2MB	85
Zeos 386sx Notebook	2MB	85
Epson NBS3	1MB	89
	4MB	219
IBM L40sx	2MB	109
	4MB	199
	8MB	359
IBM CL57SX	2MB	179
	4MB	297
	8MB	545
Packard Bell Notebook	2MB	169
	4MB	299
Altima Notebook LSX	1MB	95
	2MB	165
	4MB	275
HP 95LX,Poqet PC	512K	128
Grid Pad	1MB	198
Apple Powerbook 140/170	2MB	129
	4MB	179
	6MB	239
Mitac Notebook	4MB	279
Chaplet Notebook	4MB	279
NEC Ultra Lite SL/20/25/25C	2MB	145
	4MB	294
	8MB	495

IBM PS/2 MEMORY

		EQU. P/N	
PS/2 30	2MB	30F5360	$99
PS/2 50Z,55SX,65,70	1MB	6450603	55
	2MB	6450604	95
	4MB	34F2933	175
PS/2 70-21,A61,B21	2MB	6450608	95
PS/2 80-041	1MB	6450375	89
PS/2 80-111,121,311	2MB	6450379	109
PS/2 80-A21,A31,A61	4MB	6451060	229
PS/2 95,90,P75	2MB	6450902	115
	4MB	6450128	169
	8MB	6450129	349
PS/2 8MB EXP BRD 50,50Z,60,65SX	0MB	6450609	165
PS/2 16MB EXP BRD for all 70s & 80s	2MB	34F30XX	285
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TOSHIBA MEMORY

T1000 SE/XE/LE	1MB	$79
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T3100SX	2MB	119
	4MB	199
T3200	3MB	210
T3200SX	2MB	119
	4MB	199
T3300SL	2MB	128
	4MB	218
	6MB	325
T4400SX,T6400	2MB	139
	4MB	263
	6MB	495
T5100	2MB	119
T5200,T5200C	2MB	92
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PC HARDWARE

MICRO EXPRESS FM-360

The FM-360 is Micro Express's new 14", high-performance, high-resolution Super VGA color monitor. This monitor is compatible with the wide range of VGA, Super VGA, and 8414/A standards. In addition, since the vertical scan rate is automatically adjustable from 50 to 90Hz, the FM-360 can be used with all VGA cards, including VESA-standard cards. The horizontal scan rate is automatically adjustable from 30 to 38kHz. All of the monitor controls, including the on/off switch, brightness, contrast, and picture position are located on the front panel. Micro Express offers a full two-year warranty, with shipping for the first four months paid both ways by Micro Express. ($295) Micro Express, Inc., 1801 Carnegie Ave., Santa Ana, 92705. (714)852-1400.

PACKARD BELL 486 PC SYSTEMS

Packard Bell has introduced a new line of aggressively priced, high-performance 486 personal computer systems. All of the systems include a Packard Bell super software bundle. This family of systems features the Packard Bell 486DX2, a 50MHz 486DX2 system, which takes advantage of Intel's clock-doubling processor technology to double the computer's 25MHz clock speed. In addition to Windows 3.1, the software bundle includes Lotus 1-2-3 for Packard Bell, a special Windows version; Lotus Write, a Windows-based word processor; the Lotus SmartPics starter kit, a clip art package for Windows applications; a Prodigy startup kit and one month free service; and MS-DOS 5.0 with MS-DOS Shell and QBasic. All of the 486 models are upwardly compatible to OS/2, support the LIM EMS 4.0 extended memory specification, and are network compatible. (Suggested list price is $2700) Packard Bell, Inc., 9425 Canoga Ave., Chatsworth, CA 91311. (818)886-4600.

MICRONICS 486 SYSTEMS BOARD

Micronics introduced a new system board designed around the 66MHz Intel 486DX2 microprocessor. These boards include the 486 Gemini DX2 and the 486 Gemini VL-Bus boards. They feature an advanced write buffer and paging memory design to take advantage of the 66MHz speed. Further performance advantages are gained from Micronics' addition of VESA-compatible local bus interfaces. Micronics, Inc., 232 E. Warren Ave., Fremont, CA 94539. (510)651-5612.

FRECOM 1-LINER FAX/MODEM FOR WINDOWS

The 1-Liner Fax/Modem can tell the difference between incoming voice, data, and fax calls and answer each type of call without human intervention. With no additional external hardware, the 1-Liner provides saving over the annual costs for a second dedicated phone line for facsimile and/or data communications. The user can configure the 1-Liner to handle voice and fax or voice and data. This modem has an on-board microprocessor that lets it send and receive faxes in the background under Windows 3.x. Frecom software lets the user fax fully formatted documents. The 1-Liner for Windows also includes COmit for Windows, a new telecommunications program. ($239) Frecom Communications Co., 521 B Charcot Ave., San Jose, CA 95131. (408)955-0555.

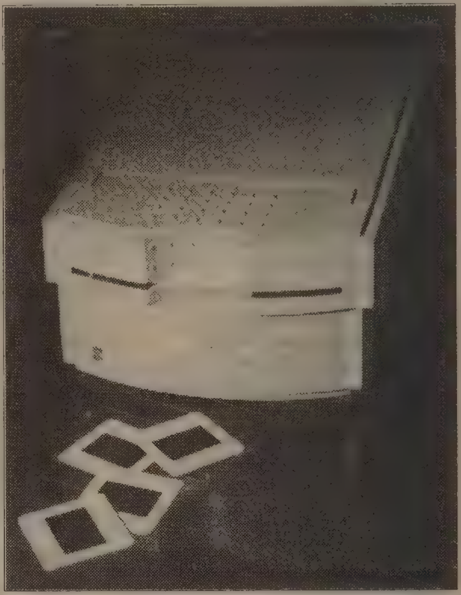
POWER/UP MODULES

Power/Up Modules offer a quick and easy way to upgrade IBM PS/2 Models 70 and 80 and Compaq Deskpro 386SX computers to 486 power. The modules plug directly into the 386DX socket on the system motherboard, providing a positive pin-on-pin or zero gap connection. It performs all translation functions and resolves memory and I/O timing path issues between the 386DX and the 486 microprocessor. All operating systems and software applications that run with the Intel 486 CPU should run with the Performance Pursuit Power/Up Modules. The company guarantees compatibility with DOS, UNIX, Windows, XENIX, and OS/2, as well as Novell and other major network operating systems. (Suggested list prices for IBM upgrades start at $1295 for the i486/20SX. Compaq upgrades start at $1095 for the i486-20SX) Performance Pursuit, Inc., 1-800-477-8101.

MACINTOSH HARDWARE

SANTOS COLOR SLIDE SCANNER

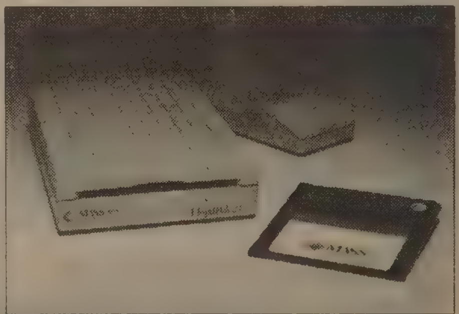
The mira•35 slide scanner for the Macintosh provides single-pass 2700dpi resolution and captures color or monochrome images from any positive or negative 35mm slide or film.



Its single-pass scanning technology reduces registration error and improves image quality. At 2700dpi resolution, the mira•35 virtually matches the grain resolution of standard film, providing the image fidelity required by photographers, print designers, and graphic artists. Bundled with the mira•35 is Santos Technology's mira•35 Plug-in module software, which acts as the control panel for the scanner. Coupled with Adobe PhotoShop software, the Plug-in allows users to create desired scans quickly and accurately. ($2695) Santos Technology, Inc., 383 Van Ness Ave., Suite 1604, Torrance, CA 90501. 1-800-966-9960.

FLOPTIPAK 21

FloptiPak 21 is a compact SCSI, 3.5", 21MB Floptical disk drive drawing its power through the floppy disk port of the Macintosh. It uses a combination of optical



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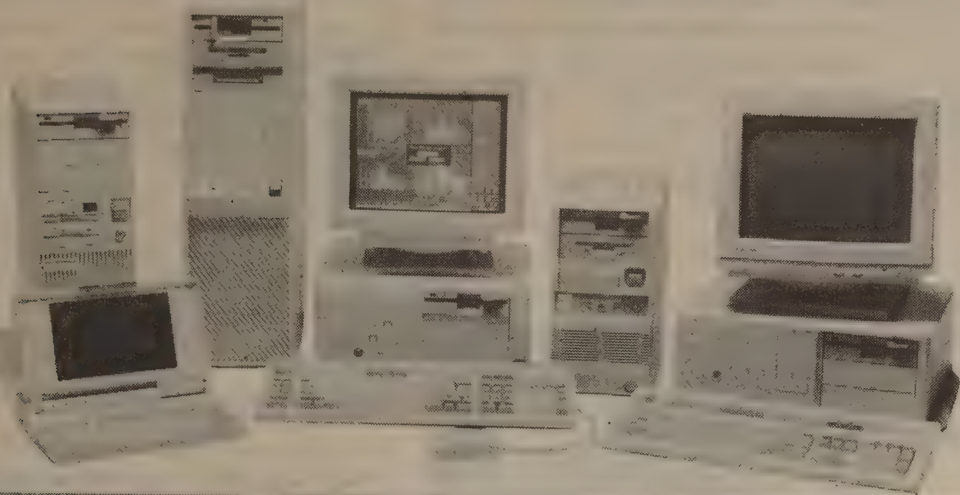

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- * MAXTOR/CONNER 120MB HD
- * Serial/Parallel/Game Card
- * Super VGA 1024x768 Monitor & 1 MB Card
- * 101 Keyboard

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with 256KCache

- * 80486-50MHz 256k Cache Motherboard
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- * Case/Power Supply
- * IDE (Hard/Floppy) Control
- * TEAC 1.2 MB Floppy Drive
- * TEAC 1.44 MB Floppy Drive
- * MAXTOR/CONNER 120MB HD
- * Serial/Parallel/Game Card
- * Super VGA 1024x768 Monitor & 1 MB Card
- * 101 Keyboard

$1839

286-12MHz

- * 80286-12 MHz Motherboard
- * 1MB RAM Expandable to 4MB
- * Case/Power Supply
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- * 386SX-25MHz Motherboard
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with 64K Cache

- * 80386-33MHz 64k Cache Motherboard
- * 4MB RAM Expandable to32MB
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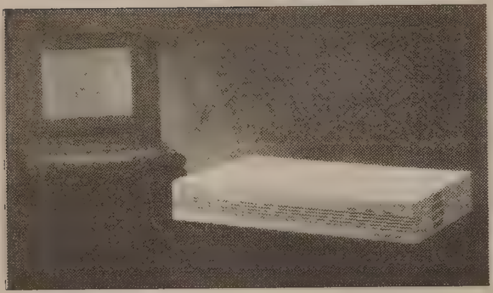
servo track positioning and magnetic read and write technologies within a very high capacity 3.5" floppy disk drive. It also has the ability to read and write to standard 3.5" 1.44 floppy disks as well as 720KB 3.5" disks formatted for PCs. The FloptiPak can be easily transported, weighing less than 2lbs. and measuring only 1" x 9" x 5". (Suggested retail price is $699. The suggested retail price of the media is $49) MASS Microsystems, Inc., 810 W. Maude Ave., Sunnyvale, CA 94086. (408)522-1200.

NETWORKING HARDWARE

CENTRUMREMOTE

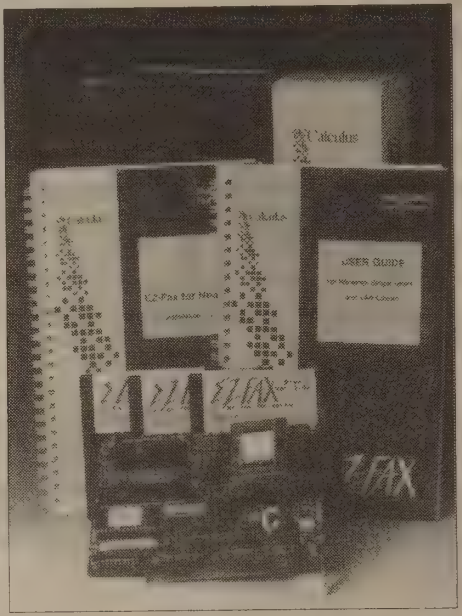


The CentrumRemote remote access server extends client-server computing to wherever and whenever users choose to work. It gives users of laptop computers and other remote PCs direct, transparent access to their corporate networks. The modular design of CentrumRemote also supports routing between remote sites. Fully configured, CentrumRemote offers concurrent access to sixteen users. CentrumRemote currently supports DOS, Windows, and UNIX environments. The remote access server is mountable in a standard 19" wiring rack and can connect directly to an Ethernet intelligent hub through an attachment unit interface. (Four-port remote access server is $3495) Centrum Communications, Inc., 2880 Zanker Rd., San Jose, CA 95134. (408)894-1800.

ADDTECH LANPRO

The LanPro 486 offers a complete "shrink-wrapped" network design for small companies or departmental use that includes a 486 file server, three SlimPro network nodes, and Novell NetWare Lite Networking software. The 33MHz 486 file server features 8MB of RAM (expandable to 64MB), a 340MB hard drive, a 250MB .25" tape drive, and a 1.2MB 5.25" floppy drive. Each SlimPro computer is configured with a 25MHz 386SX, 1MB of RAM, and a 40MB hard disk. All the units include a 1.44MB 3.5" floppy drive, Ethernet network card, SVGA graphics board, 14" SVGA monitor, 101-key keyboard, two serial ports, and one parallel port. (List price for the LanPro 486 file server and three SlimPro network nodes is $9999) Addtech Research, Inc., 41332 Christy St., Fremont, CA 94538. (510)623-7583.

CALCULUS EZ-FAX FOR NETWORKS



EZ-Fax for Networks offers a complete hardware/software solution for computer fax services to network users. With EZ-Fax's "fax just like you print" design philosophy, fax creation and transmission is identical to normal document creation and printing from any DOS or Windows application. EX-Fax also includes direct client notification for NetWare and LANtastic networks, eliminating guesswork and saving redundant checks of Activity Logs. The EZ-Fax server passes a message to the sending client, which briefly opens a transient window and provides status information for the client user. The FaxMerge feature permits bulk faxing of personalized documents to multiple destinations. EZ-Fax for Networks includes a 9600bps Network Faxcard, fax server software, and both DOS and Windows client-station software. (Suggested list price is $1399 for up to eight stations, and $1799 with no limit on the number of stations) Calculus, Inc., 1761 W. Hillsboro Blvd., Deerfield Beach, FL 33442-1530. (305)481-2334.

EVEREX STEP MPFT 2201

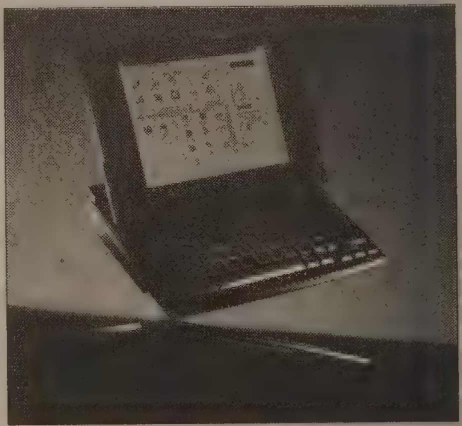
The STEP MPFT 2001 (multi-processing fault-tolerant) is designed specifically to run Novell's NetWare 3.12 and SFT III network software. SFT III is Novell's system fault-tolerant version of NetWare 3.1 software which is capable of bringing fault tolerance to the network user. A dual redundant hardware architecture with two complete processing systems in one enclosure ensures no single point of failure. In case of failure in either system, the functional system continues to operate. The failed system can then be repaired while the functional system is online, thus providing continuous operation. Memory mirroring built into the STEP MPFT 2001 provides for 100% memory reliability and guarantees that all single-bit, double-bit, or multiple-bit memory errors will be detected. Complete data protection is ensured through Everex's Disk Array Technology. ($4995) Everex Systems, Inc., 48431 Milmont Dr., Fremont, CA 94538. (510)498-1111.

OMNIPOWER 900LAN

The Omnipower 900LAN provides line voltage regulation in a network-compatible UPS. Featuring 900V of power plus a LAN interface port, the 900LAN provides automatic, unattended shutdown on any network system, including LANtastic and AppleShare. It features four AC outlets, ISOBAR spike and noise filtering, and a full two-year warranty. (Suggested retail price is $799) Tripp Lite, Inc., 500 N. Orleans, Chicago, IL 60610-4188. (312)329-1777.

LAPTOPS

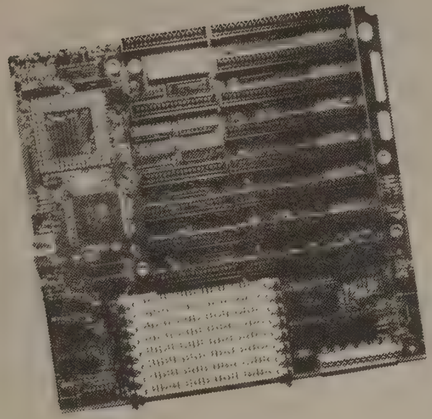
AVANTI 486 NOTEBOOK



The 25MHz Avanti 486 notebook combines a Cyrix 486SLC processor with onboard cache, a math coprocessor, and Advanced Power Management (APM). APM features let you extend battery life, giving you up to eight hours of power. This notebook comes equipped with a 9600bps fax send modem, a 4800bps fax receive modem, and a 2400bps data communications modem. The Avanti 486 is bundled with MS-DOS 5.0, Windows

Continued

Welcome on board!!



486DX/SX NONCACHE(AR425)

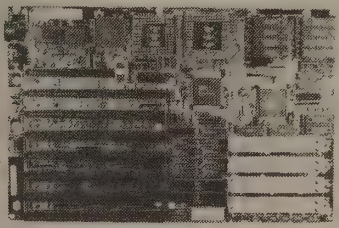
486 Power at 386 Prices!

Comparison Table

Software	Version	386-40	*486SX-25*	Unit
Power Meter	I1.7	8.6	*11.1*	MIPS
Landmark	V1.14	64.9	*113.2*	MHz
Checkit	V3.0	9747	*12054*	Dhystones
Qaplus	V4.52	11379	*15172*	Dhrystones
Cache Size		64K	*0K*	Byte
Cost With CPU *		$175	*$175*	USD

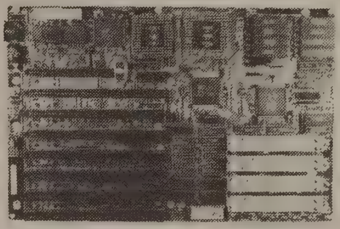
*Estimated in July, based on minimum quantity of 100 units.

Let's talk about boards,



486DX-50(AT450)

CPU:80486-50
CHIPSET:SIS
CACHE:64/128/256/
512KB/1MB
BIOS:AMI
BOARD SIZE:BABY
SLOTS: 8

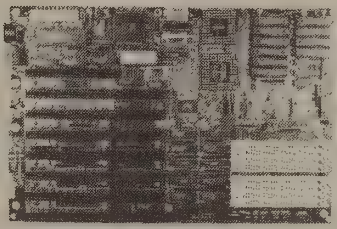


486DX-33;SX-25/ 20(AT433)

CPU:80486DX2-50/66
CHIPSET:SIS
CACHE:64/128/256/
512KB/1MB
BIOS:AMI
BOARD SIZE:BABY
SLOTS: 8

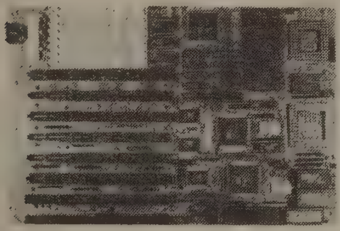
386DX-40/33/25(FU333)

CPU:80386-40/33/25
38605-40/33/25
CHIPSET:CHIPS AND TECH.
CACHE:64/128/256/
BIOS:AMI
BOARD SIZE:BABY
SLOTS: 8



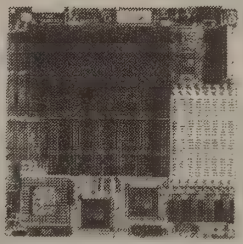
386DX-33/25(FS333)

CPU:80386-40/33/25
CHIPSET:SIS
CACHE:64/128/256/
BIOS:AMI/AWARD
BOARD SIZE:BABY
SLOTS: 8



486-50/33 EISA(AE4)

CPU:80486-50/33
CHIPSET:SIS
CACHE:64/128/256
BIOS:AWARD
BOARD SIZE:BABY
SLOTS: 8



486DX-50/33;486SX-25/20(AX4)

CPU:80486DX2-50/66
CHIPSET:SIS
CACHE:64/128/256/
BIOS:AMI/AWARD
BOARD SIZE:HALF
SLOTS: 7

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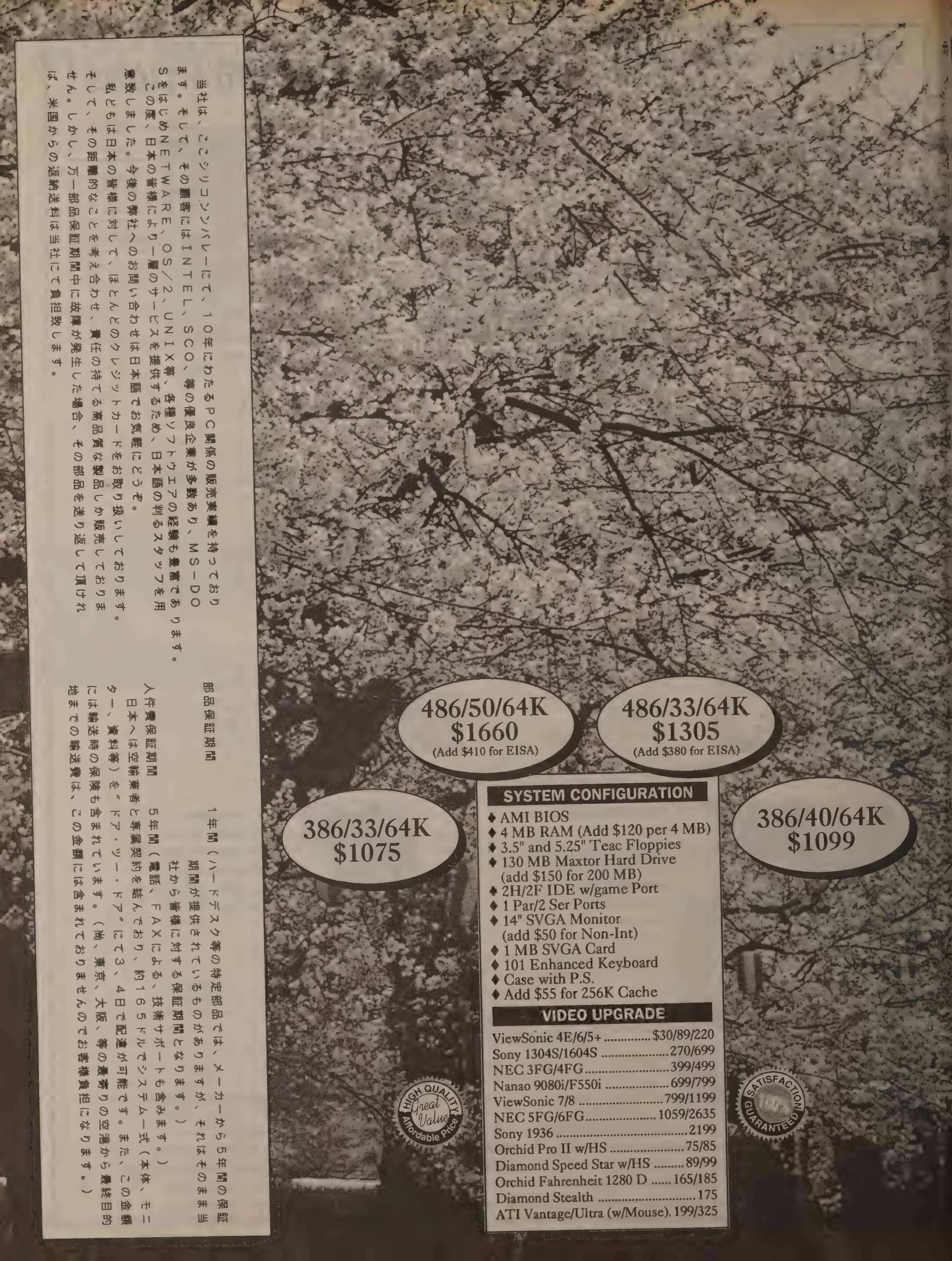

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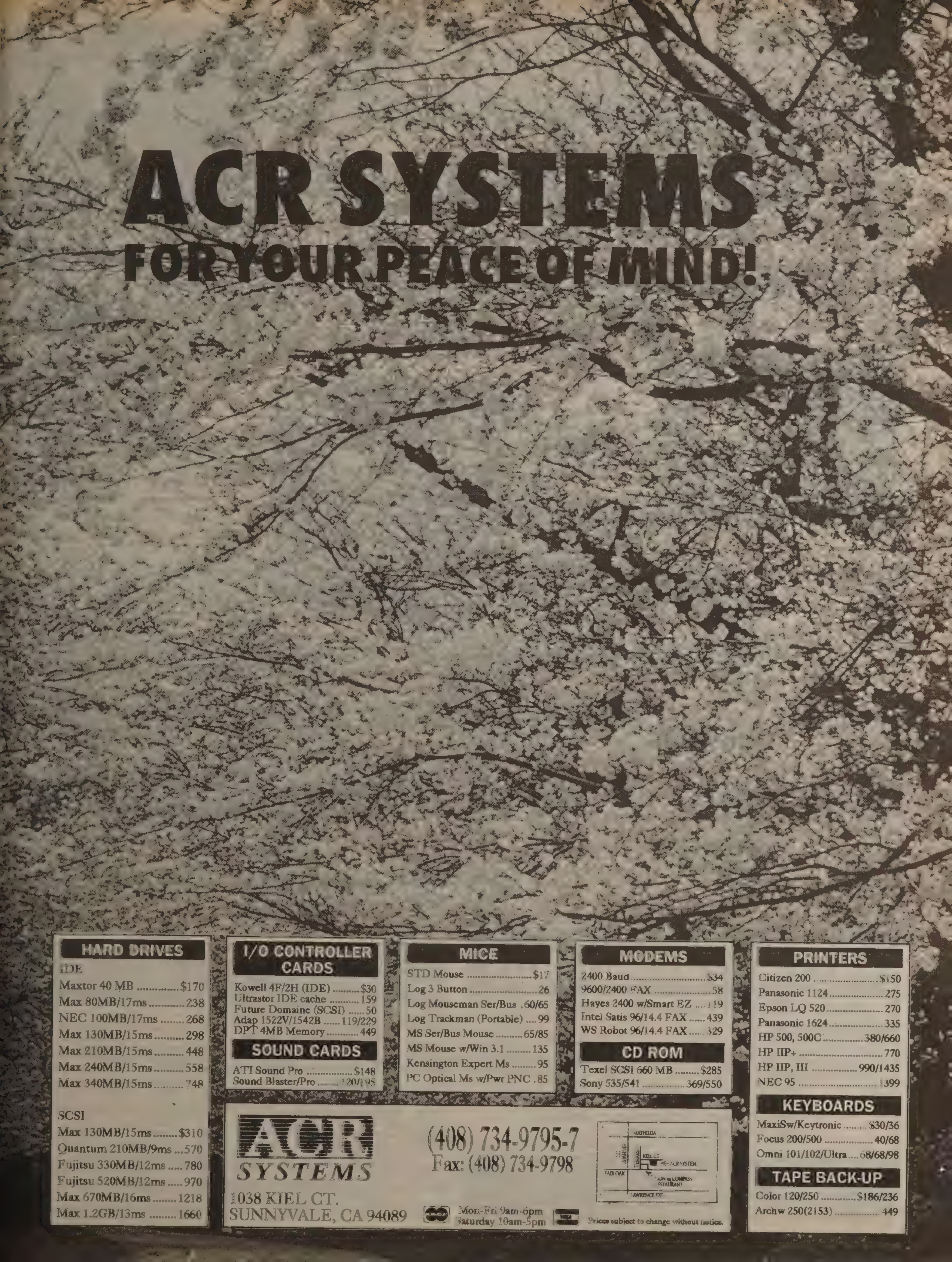

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3.1, Terminal Plus, WinFAX 2.0, and Magic Cursor! The Silicon Switch Technology (SST) keyboard eliminated all metal parts for enhanced tactile response and high reliability. ($2700) Beaver Computer Corp., 174 Component Dr., San Jose, CA 95131-1119. (408)944-9000.

TRAVELER FAX MODEM

The Traveler is a 9600/4800bps send and receive fax and 2400bps data modem with V.42bis and MNP combined in a convenient battery or AC operated portable package. It comes complete with fax, communication software, and cable. The hotkey faxing and sleep mode features for low power consumption and longer battery life make data communication on the go easy and convenient. The Traveler lets you receive faxes anywhere without worrying about wasting paper or keeping track of a growing number of papers you would otherwise receive. ($199) Best Data Products, Inc., 9304 Deering Ave., Chatsworth, CA 94311. 1-800-773-9600.

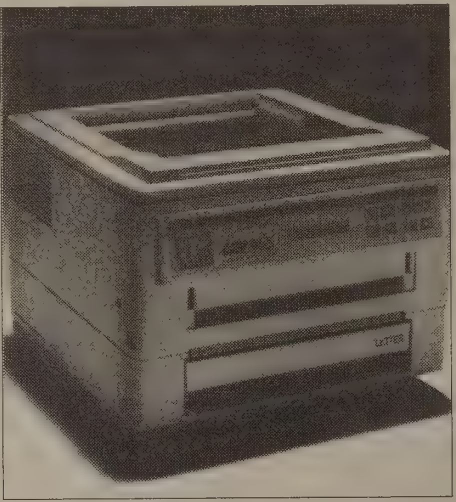
NOTEGUARDIAN

The fast rise in the use of notebook computers has been accompanied by a sharp rise in their theft. NoteGuardian, a custom-designed hardware product that helps prevent theft of portable computers, gives users the freedom to step away from their portables. With NoteGuardian, users can easily anchor expensive computer equipment loaded with confidential data to any stationary item at airport terminals, restaurants, or any high-traffic area. It incorporates a 5' steel security cable with a built-in lock to secure your computer. ($69.95) PC Guardian, Inc., 118 Alto St., San Rafael, CA 94901. (415)459-0190.

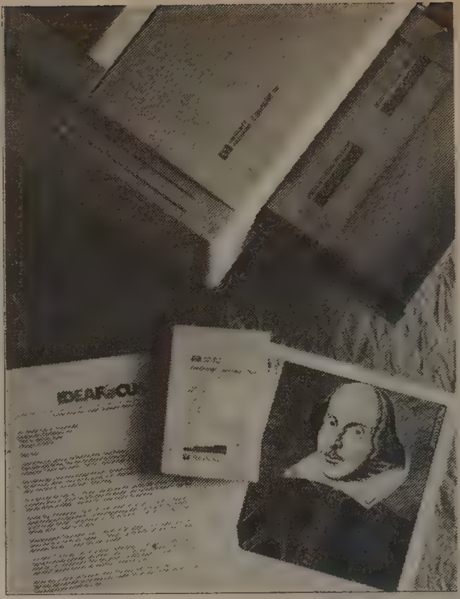
PRINTERS

LZR 965 LASER PRINTER

The LZR 965 is a new 600-dot-per-inch (dpi), 9-page-per-minute RISC-based laser printer incorporating PostScript Level 2. This printer works simultaneously in both Macintosh and PC environments because it comes standard with AppleTalk/LocalTalk. Centronics parallel and RS-232 serial interface ports, and a SCSI interface for hard drive connection are also standard. Each LZR 965 comes with 8MB of memory, expandable to 16MB. It has a 250-sheet paper cassette that fits flush with the front of the printer. An LCD indicates menu options and printer status in English, German, French, Italian, or Spanish. ($2995) Dataproducts Corp., 6219 De Soto Ave., PO Box 746, Woodland Hills, CA 91365-0746. 1-800-887-4789.



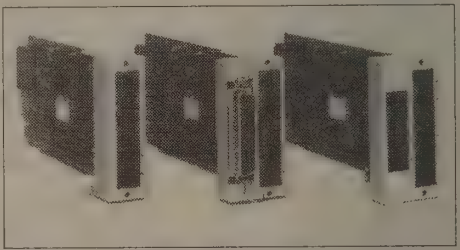
HP POSTSCRIPT CARTRIDGE



This new PostScript cartridge gives HP's LaserJet III printer-family users the ability to switch between PostScript and HP PCL 5 printer languages automatically, reliably, and quickly. The HP LaserJet PostScript Cartridge Plus (C2089A) for HP LaserJet III, IIIP, and IIID printers features authentic Adobe PostScript Level 2. It can also be used with HP network printer interface cards that allow users to connect their HP LaserJet printers directly to Ethernet or Token Ring networks running Novell NetWare. The cartridge can be used on other network systems with support from third-party utility products. ($695) Hewlett-Packard Co., Inquiries, 19310 Pruneridge Ave., Cupertino, CA 95014. 1-800-752-0900.

LASERNET SHARECARD

The LaserNet ShareCard is a high-speed, plug-in printer-sharing card for the HP LaserJet. ShareCards are designed for the office or department environment where up to ten users must share an HP LaserJet III,



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- Bios & Video Shadowing
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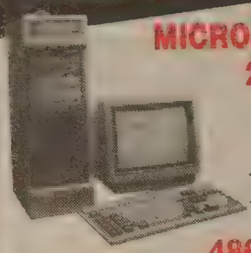

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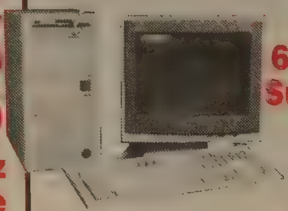

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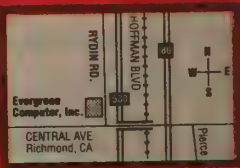

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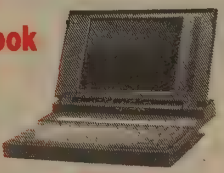

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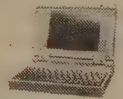

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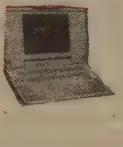

WINSX standard features include: 80387 3X/20 co-processor, sidelit back or white triple supertwist VGA LCD screen with a resolution of 640x480 322 grey scale, 4MB of RAM expandable to 6MB, 3.5" 1.44MB floppy drive, MS-DOS, Windows, Battery Pro, Laptop File Manager, Poser Save, Password, Utilities, battery and AC adapter

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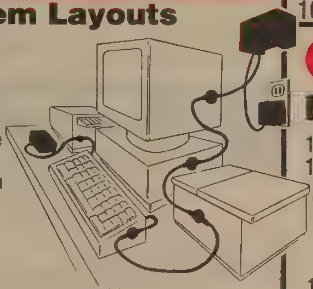

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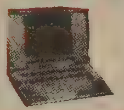

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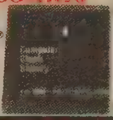

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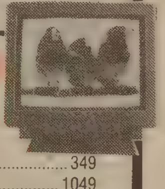

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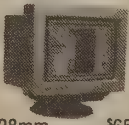

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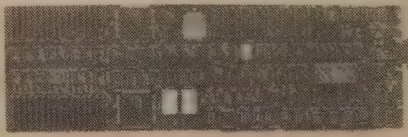

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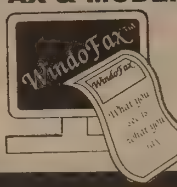
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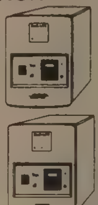

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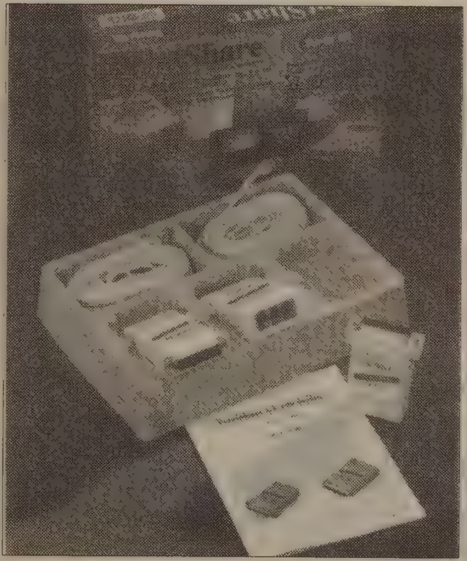
IIID, II, or IID. There are three ShareCard models—the SC-6 with six serial inputs, the SC-7 with six serial inputs plus one parallel input, and the SC-10 with ten serial inputs. The ShareCard plugs into the LaserJet's optional I/O slot and does not require a separate power connection or additional desk space. All input ports employ RJ-11, telephone-style, snap-in connectors. Each model supports all types of computers including IBM PC and compatible, Macintosh, and HP 3000. (Suggested retail price for the six-port version is $495) Western Telematic, Inc., 5 Sterling, Irvine, CA 92718-2517. 1-800-845-7226.

TWINJET CHAINING FONT CARTRIDGES

The TwinJet Chaining Font Cartridges plug into HP LaserJet laser printers just like PS cartridges. The difference is that, unlike HP's and other vendors' cartridges, TwinJet's cartridges can chain to each other or to HP cartridges, enabling the user to install up to three font cartridges in a single font cartridge slot. The TwinJet library consists of thirteen separate font cartridges, each offering the same fonts as cartridges in HP's MasterType library. (Font cartridge prices begin at $85) TwinJet Technology, Inc., 765 Flynn Rd., Camarillo, CA 93012. 1-800-637-7878.

PRINTSHARE ADAPTER



PrintShare is an easy-to-install, simple-to-use printer sharing device that allows up to four PCs to share one printer. Each adapter plugs directly into the parallel port of a PC and connections are made over four-conductor flat telephone wire. Print access is on a first come, first serve basis. No software or external power is required for operation. PrintShare operates in both Windows and DOS environments. ($89.95 includes the adapter and 25" of four-wire modular cable) L-Com Data Products, Inc., 1755 Osgood St., N. Andover, MA 01845. 1-800-343-1544.

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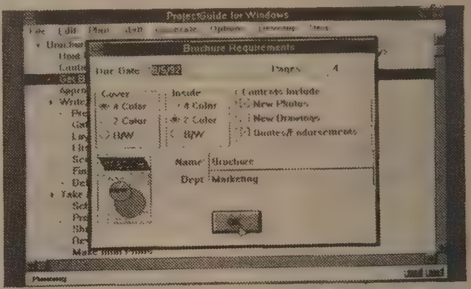

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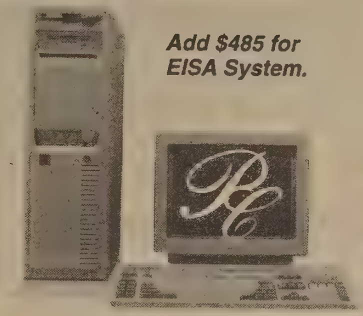

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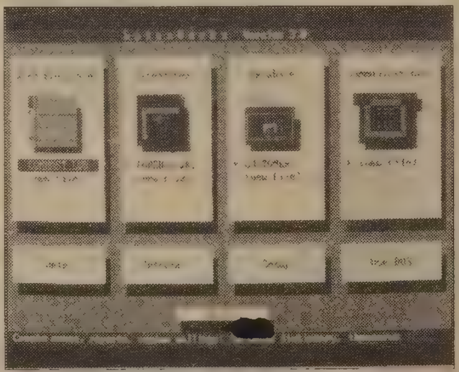
ARES FONTMONGER

FontMonger is a font conversion and creation application for the IBM PC and compatibles running Windows 3.x. FontMonger converts font files in any direction between Adobe PostScript Level 1, PostScript Level 3, Nimbus Q, and TrueType. FontMonger also converts files from Agfa Intellifont and Corel WFN into any of these other fonts. Converted fonts can be saved for IBM PC and compatibles, Apple Macintosh, and NeXT platforms. Also included is a sophisticated set of drawing tools which enable the end-user to create character outlines from scratch or modify existing outlines in any of the supported formats. ($149) Ares Software Corp., 561 Pilgrim Dr., Suite D, Foster City, CA 94404. (415)578-9090.

LOTUSWORKS 3.0

LotusWorks 3.0 for DOS is a major upgrade to its entry-level integrated software program, providing word processing, spreadsheet with graphics, database, and communications modules. With v3.0, LotusWorks offers Windows-like functionality—up to nine resizeable and moveable windows, pull-down menus, scroll buttons, elevator bars, and dialog boxes create a simple, yet effective user environment. As a DOS product, it requires only 640K of memory and is thus suitable for portables and the home office/small business. Increased functionality in the word processor includes print preview, the ability to embed graphics or spreadsheet documents, and attribute and font support functions. In addition, LotusWorks 3.0 continues to use WK1 and DBF file formats, offering complete file compatibility with Lotus 1-2-3 and dBASE. ($149) Lotus Development Corp., 55 Cambridge Pkwy., Cambridge, MA 02142. 1-800-343-5414.



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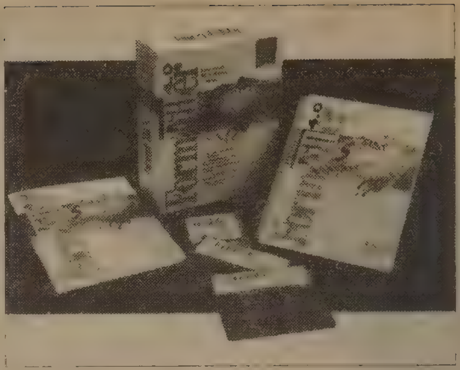

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Word for Word Professional file conversion utility supports many Windows-based word processors including, Microsoft Word for Windows, WordPerfect for Windows, Windows Write, and Ami Pro 2.0. The newest version, 5.1, performs conversions between more than ninety specific formats, including cross-application conversions such as spreadsheet and database/mail merge formats to and from word processing formats. Support for Windows application formats allows for conversions between Windows, MS-DOS, and Macintosh formats on the PC. Available in LAN configurations, Word for Word Professional operates on PC server-based and peer-to-peer networks. It can find and convert files located on any accessible drive on the network. (Suggested retail price for the standalone version is $149, and the three-user LAN version is $299) Mastersoft, Inc., 6991 E. Camelback Rd., Suite A-320, Scottsdale, AZ 85251. (602)277-0900.

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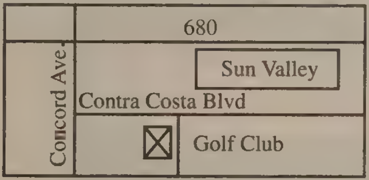

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REVIEWS

GAME REVIEWS

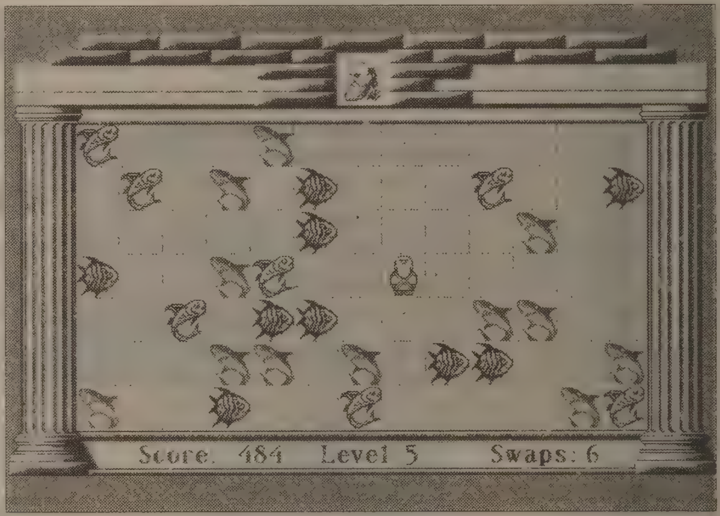
By Mike Markowitz

DARWIN'S DILEMMA 2.0

Designed By: Andre Ouimet
Published By: Inline Design
For: Macintosh: Plus or later, System 7 compatible; 2MB RAM required for color
List Price: $49.95

Darwin's Dilemma is a challenging and delightful puzzle game, loosely based on the concept of biological evolution.

The display is a 7 x 13 grid where icons representing various organisms are randomly deployed at the start of the game. You can click in an empty square to position a cute little animated Darwin figure who is used to move the other icons around. An icon is free to slide horizontally or vertically until it hits another icon. If it runs into another icon of the same type it will merge. If you merge enough icons of the same type, they evolve into a "higher" type. When you complete all the possible merges on the board, the game advances to the next level. A record of your achievements is maintained on a High Scores screen.



You have a limited number of "swaps" that you can use to facilitate merges or break up iconic log-jams. You gain points for completing levels and lose points for expending swaps.

Along with color and System 7.0 compatibility, v2.0 offers Icon and Level editing utilities, allowing you to create your own "worlds" in 256 colors. Icons can even be imported from other Macintosh applications. The Level Editor is set up like an organization chart, showing how many icons of one kind need to be merged to create the next kind. A sample "world" included in the package uses icons based on figures from US history, with Nixon as the lowest life-form.

Graphics and Animation: 8
Sound: 9
User Interface: 9
Overall Play Value: 9

The publisher, Inline Design, specializes in nonviolent entertainment products for Macintosh. "There is nothing wrong with shoot 'em ups," says Darryl Peck, Inline's president. "we just think there are much more creative ways to have fun."

The program is easily installed from one 800K floppy and requires a modest 612K of disk space. Saved games take up only 2–3K each

Every Mac gamer around here who has seen Darwin's Dilemma

Continued on page 282

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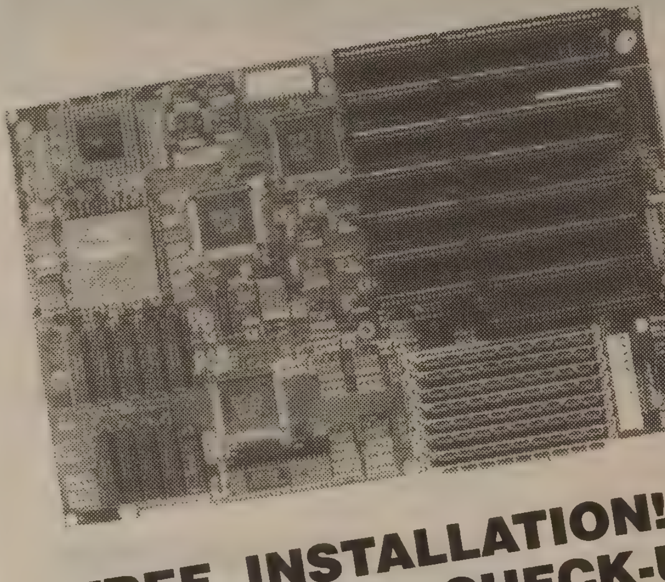

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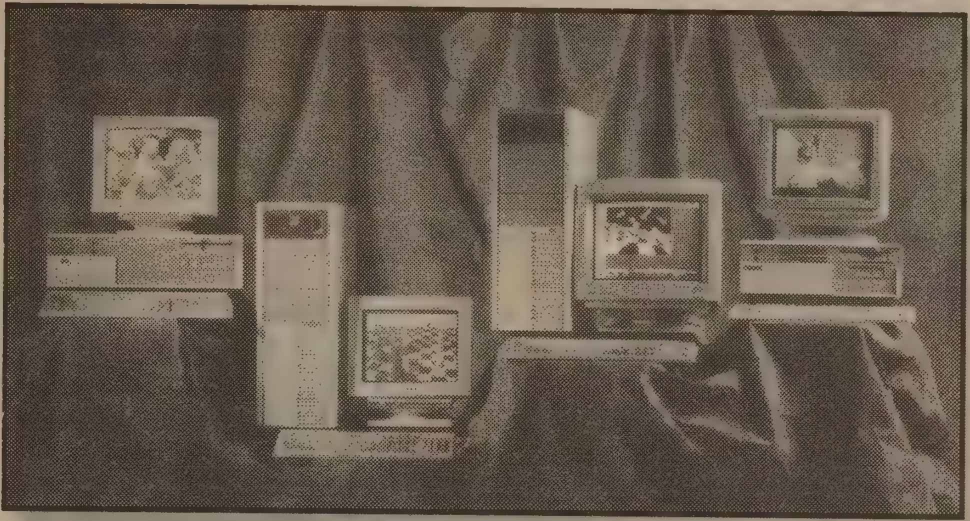

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CREATIVE TOOLS

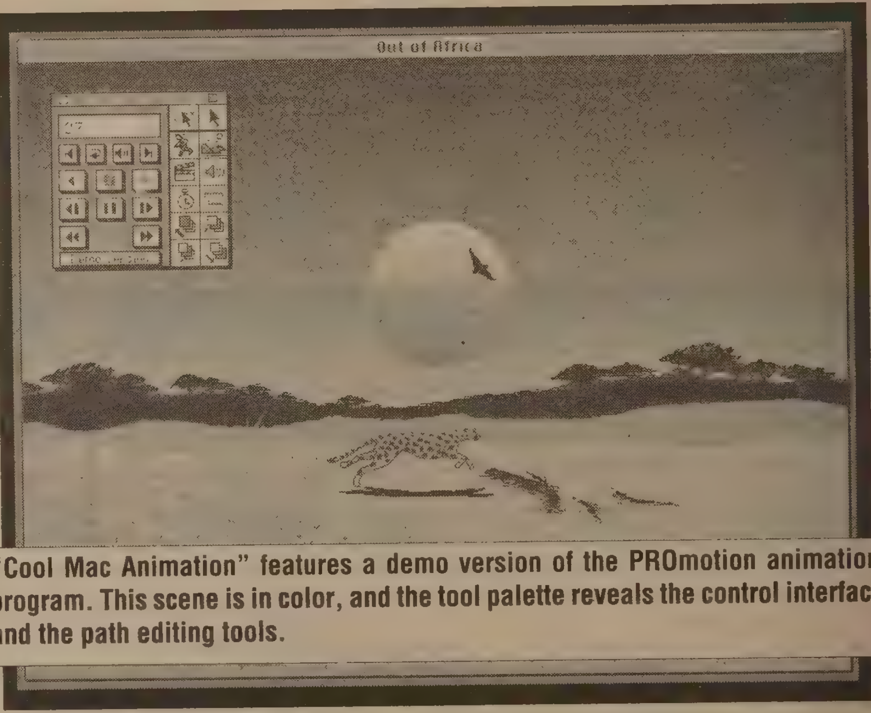
Cool Mac Multimedia

Or
Honey, I Shrunk The Software/Blew Up The Manual

BY TONY REVEAUX

Because multimedia is as diverse and complex as it is exciting, it can be tough to know where to start, and hard to be sure you've actually been there. With the "Cool Mac" series, you can get your multi one medium at a time. The series is designed to be attractive and engaging, with a lighthearted, nonthreatening accessibility. The packages are at once "software toys" and educational introductions to some of personal computing's most challenging and powerful capabilities.

The "Cool Mac" series takes an interesting approach to this challenge. First, there is the publishing format. We may be streaking towards the age of Newtonian Personal Data Assistants that will clasp on a wrist or hang from an earlobe, but a book is still one of the easiest media to use. To boot up: turn page.



"Cool Mac Animation" features a demo version of the PROmotion animation program. This scene is in color, and the tool palette reveals the control interface and the path editing tools.

The book component in a "Cool Mac" book/disk package is about 132 pages, and reads like a combination of a Mr. Science's Introduction to a technology and a software manual. The book part eases the reader into the background of the medium being discussed and reveals the theory and fundamental principles of the underlying technology. The manual part is organized and sequenced to complement the software programs, demos, utilities, and documents on the disk. There are glossaries and indexes of resources, and a "Cool Solutions to Uncool Problems" troubleshooting section.

Each disk of compressed files is a combination of shareware, freeware, demos, samples, examples, and some software pieces written for the title. This is the only way you could expect to get this much stuff for this low price. In some instances, you could pay that much in online fees to download the software. One of the highlights of the series is that, because of the multiple sources of the software, it can read like a lively anthology, with a variety of different styles of software authorship. The downside is that it can sometimes feel like a garage sale of dancing dataforms that don't always relate to one another.

The authors of the books, by and large, do an excellent job of weaving it all together so that you achieve a good familiarity with the principles and practices of the medium, you get your hands dirty actually working with it, and you can come out of it with a fair idea of where to go next if you want to pursue multimedia further.

I've been impressed with the accessibility of this series. The books can be enjoyed by a Mac-literate tenth-grader, or useful to a professional who needs a quick familiarity and understanding about a certain facet of multimedia. The "Cool Mac HyperCard" package, for example, begins with "baby" stacks and concludes with high-end HyperTalk. But you must understand that you are not buying a full software application; you are getting the "Let's Go!," Berlitz/Club Med tour to explore the various media so as to be able to find out what application program(s) you might want to go on to next. And also have a good time while you are on board.

COOL MAC SOUNDS

Craig O'Donnell's "Cool Mac Sounds" gives a background to the integral role of sound in the Macintosh architecture, and then goes on to offer some very practical advice on third-party external speakers and accessories. Digital sampling, with quantization and clipping, is briefly and succinctly explained.

RESOURCES:

"Cool Mac Stacks," by David Drucker
"Cool Mac Sounds," by Craig O'Donnell
"Cool Mac Animation," by Clint Hicks
"Cool Mac QuickTime," by Steve Sanz
$19.95 each
Hayden Books
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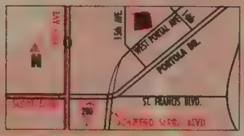

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One of the most useful services this book provides is laying out and identifying the different Macintosh sound file formats—AIFF, FSSD, Snd, etc.—and explaining how to work with them through the initial confusion of incompatibilities. Installing and playing sound files is well taken care of for both System 6.05 and System 7 users. O'Donnell coaches you through Mac recording sessions using the built-in microphones in the Mac IIsi and LC, or in MacroMedia's MacRecorder. You're not getting Macromedia's SoundEdit Pro here, but you do get the next best thing. SoundEdit Pro is described and explained, and you get Riccardo Ettore's Sound Mover. Similar in principle to FontDA Mover, Sound Mover lets you move sound resources between systems and applications, rename them, and save them at four different Mac sample rates. It also has a handy volume-controllable playback command, and it displays the waveform at the bottom of its window that allows simple sound file editing. It can't match SoundEdit Pro, of course, but it should be just what you need for most of your desktop soundbytes. For instance, I could take the "B-Movie Scream" file and create four more movie screams at different pitches and timbres. Now I am free to select my Godzilla, Lon Chaney, Johnny Weismuller, or Margaret Hamilton screams.

> *With the "Cool Mac" series, you can get your multi one medium at a time.*

Sound in QuickTime is mentioned but not investigated; but sound in HyperCard gets a thorough treatment, facilitated by the Lab Stack, which has HyperTalk script and sampled-sound playback examples. Among the other software pieces are lots of music, fx sounds, INITs and FKeys, CDEVs, and utilities.

COOL MAC STACKS

HyperCard is now five years old—David Drucker's "Cool Mac Stacks" shoehorns you right into the realm of stackdom before you can even work up much HyperAnxiety. It is a succinct and snappy door-opener to the HyperCard authoring system, and has you browsing within minutes. A few pages more, and into the first of the big library of stacks on the disk, and you are (gasp!) creating a stack.

The secret of Drucker's approach is that he knows how to show just the essentials without overwhelming the beginner. He explains XCMDs (external commands), and then brings you into Recipes, a basic database stack. It adds its own menu to the menu bar, and reflects the integral structure of hyper information.

Another stack, Phone->Acronym, allows you to select combinations of numeric letter equivalents for a vanity phone number. It may take quite a while for you to find your illustrative number, but the stack does demonstrate an example of the computer as a coincidence generator.

The Abacus stack demonstrates another mathematical visualization, and the Sunrise Demo stack not only finds solar information, but provides an example of HyperCard used as a front end—one of its most practical uses out there in the world. HyperConference can be used on a System 7-based AppleTalk network, and this stack will support real-time, computer-based conferencing, with network identity, file sharing, and program linking.

Renaissance Man is a basic verbal interactive game form, and you can strike back at Balloon Help with Balloons, an advanced stack that allows you to add custom balloons to your customized stacks. More advanced hypertools are PICS Player, which can bring external animation files into HyperCard, and Colorizing HyperCard, which lets you add color to HyperCard cards. "Cool Mac Stacks" alone won't make you a HyperAce, but it will get you up into the air.

COOL MAC ANIMATION

Clint Hicks' "Cool Mac Animation" is not a full-featured animation program—you'll need a lot more than $20 for one of those—but it is a good introduction to the concepts, principles, and execution of computer-based animation. The disk provides a demo version of PROmotion, a decent (and QuickTime-compatible) low-level animation program that embodies most of the kinds of functions you'll find in other applications. This is a key point—you can't save PROmotion movies with the demo version, but you can save them as QuickTime movies. The downside of that is that while you may have preserved the playback record of your animation, you can't go back inside it and fix things, or reuse art, components, or modules that you have created there in other animations.

The disk includes Apple's QuickTime; PopCorn; the widely used QuickTime playback and very basic editing utility, Re-Animator; an application that lets you play back black-and-white animations; and artwork to create PROmotion animations. These include two character sets and a background set. The samples include QuickTime movies, black-and-white PROmotions, and "Out of Africa," a heartbreaker of a color sequence that shows how far the program can go—quite beyond your initial frame-by-frame steps.

But the real point of this is to get you up and rolling, and Hicks provides a good review of the other animation programs out there such as Director, Cinemation, and Animation Stand (but not Macromedia's Action! and Magic).

It is noteworthy that "Cool Mac Animation" is right up there in the Desktop Video age with closing chapters on capturing, editing, and assembling video, as with SuperMac's VideoSpigot and Premiere, and making a QuickTime movie.

COOL MAC QUICKTIME

If you really want to do QuickTime, you should get Apple's QuickTime Starter Kit ($145). Before you get the Kit, though, you might do well to get Steve Sanz's "Cool Mac QuickTime."

In some ways, it has the least to work with in terms of available tools for QuickTime, but Sanz gives you as good an introduction to QuickTime as you're likely to find at this time. He explains the concepts and practices of digital compression—the RDNAS of QuickTime—and the body parts of QuickTime, such as the Component Manager, and the QuickTime interface. The fundamentals of QuickTime's time base structures and track characteristics are revealed.

Sanz is able to devote more space and detail than Hicks to the subjects of capturing video; editing and assembling video, with details of Premiere, VideoFusion, and VideoShop; and more about sound in QuickTime than in O'Donnell's book.

There is also a good preparation for video out—displaying, printing, and publishing QuickTime movies. Sanz covers the hardware and software options for digital video, including transcoding and file format conversions. You've probably seen the demos of QuickTime movies dropped into Mac application files like word processing and spreadsheets; that ability is clarified here. Like all of the "Cool Mac" books, "Cool Mac QuickTime" provides a warm and welcome intro to greater multimedia expectations.■

Once Again With *Style*

WriteNow 3.0 Adds Powerful Style Sheets To An Already Strong Word Processor Application

BY TONY ROCCO

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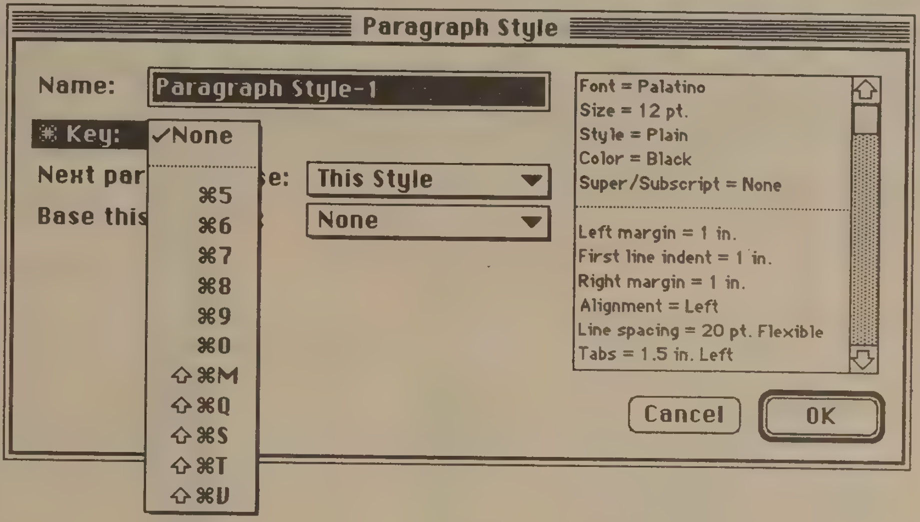
WriteNow 3.0 from T/Maker retains all the virtues of its earlier incarnations—speed, ease of use, and as many features as you could reasonably ask for—while adding powerful style sheets and print preview. I only wish T/Maker had gone the whole nine yards and enhanced mail merge as well. Other companies have found ways to make it easier, and T/Maker will have to, also.

Style sheets are the chief advantage of 3.0 over its predecessors. Style sheets, if you are not familiar with them, make formatting long documents a breeze with "styles." A style is a set of ruler settings (tabs, margins, indents) and character attributes (font, size, style) stored by the application and applied with a single command. You can define styles for the body of a document, headings, bulleted lists, footnotes, headers and footers, and so on. You can choose a style and begin typing, or you can apply a style to existing text. By editing a style (changing its ruler settings and/or character attributes) you can make quick global changes.

T/Maker's implementation of styles is quite similar to that of Word's, but more accessible and, in keeping with its generally more accessible nature, equally powerful. You get two kinds of style sheets in WriteNow, paragraph styles and character styles. The former apply only to entire paragraphs and include ruler settings and character attributes, the latter can apply to selected text within paragraphs and control only character attributes. You can assign any style a key command, and select them from pop-up menus at the bottom of the window. Both features make styles easier and faster to use.

I like the easy way an existing style can be changed. If you have a paragraph formatted with Style A, for example, and narrow the margins and enlarge the font for that paragraph, you can permanently incorporate those changes into the style. You just give the Add to Style command; the new ruler settings and character attributes then become a permanent part of Style A and all text with that style similarly changes.

The new print preview feature in WriteNow is well done, also. It's fast and allows you to see a document one page at a time or as side-by-side thumbnails. It includes a magnifying glass to zoom in on any part of a document you want to see more closely. You can print from print preview, and when you want to return to normal galley view, you can go straight to a particular page by selecting a tool and clicking on that page.



Name: Paragraph Style-1

This Style

None

Font = Palatino
Size = 12 pt.
Style = Plain
Color = Black
Super/Subscript = None

Left margin = 1 in.
First line indent = 1 in.
Right margin = 1 in.
Alignment = Left
Line spacing = 20 pt. Flexible
Tabs = 1.5 in. Left

WriteNows's styles can be assigned key-commands, a handy feature.

Having duly praised WriteNow's newly acquired virtues, I must mention a shortcoming that frankly surprises me. Given that WriteNow's approach emphasizes accessibility and ease of use, T/Maker could have made its mail merge feature more user-friendly. I've seen several implementations of mail merge that make the normally odious chore quite easy with dialog boxes. WriteNow retains the awkward and tedious method of manually marking fields with chevrons. This oversight is even more surprising given that several other word processor vendors came up with better methods quite some time ago. If I were considering ways of revving the next version of WriteNow, simplifying mail merge would be a top priority.

WriteNow 3.0 comes bundled with Grammatik Mac, a grammar and spell checking utility from Reference Software. I was surprised at how much I liked it. Grammatik makes useful suggestions, although it can get a little repetitive as it highlights every instance of a sentence that may be too long or the use of passive voice. You can set different parameters for how Grammatik analyzes your work depending on whether you're writing a technical article or creative fiction. For example, if you choose the technical setting, Grammatik won't let you get away with sentences as long as it would allow for fiction. For many, I can see this utility making a valuable contribution to their writing.

Another writing aid included with WriteNow is an excellent thesaurus DA called WordMaster. The impressive thing about WordMaster is that in addition to providing synonyms and antonyms, it gives you word definitions and compared, contrasted, and related entries. This is a utility that any writer can put to good use. WriteNow also comes with its 135,000-word dictionary that works with great speed.

If you're looking for a word processor that handles the basics really well and offers many of the benefits of the high-priced spread for under $200, you should make WriteNow 3.0 one of your top candidates.■

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Tony Rocco is a Bay Area free-lance technical writer and journalist.

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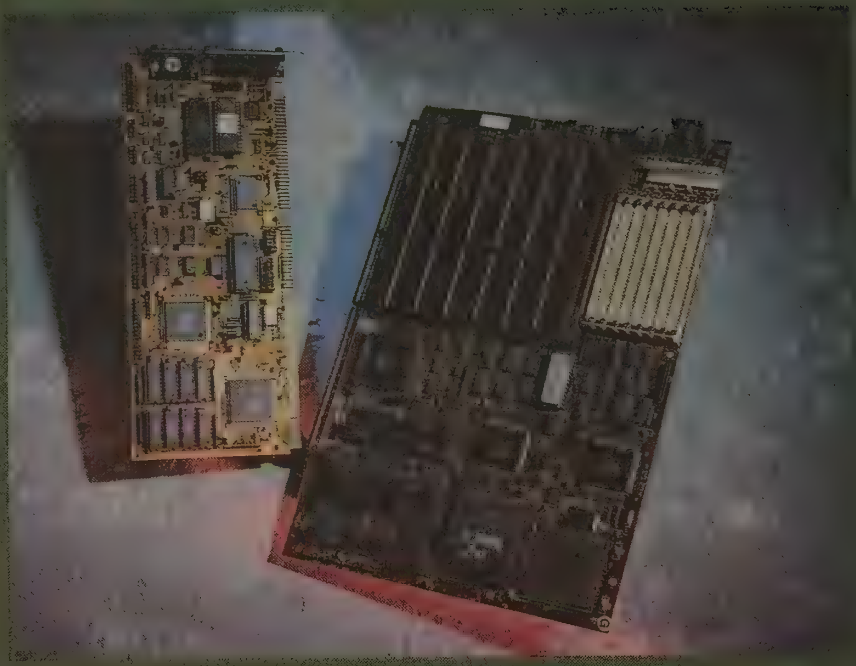

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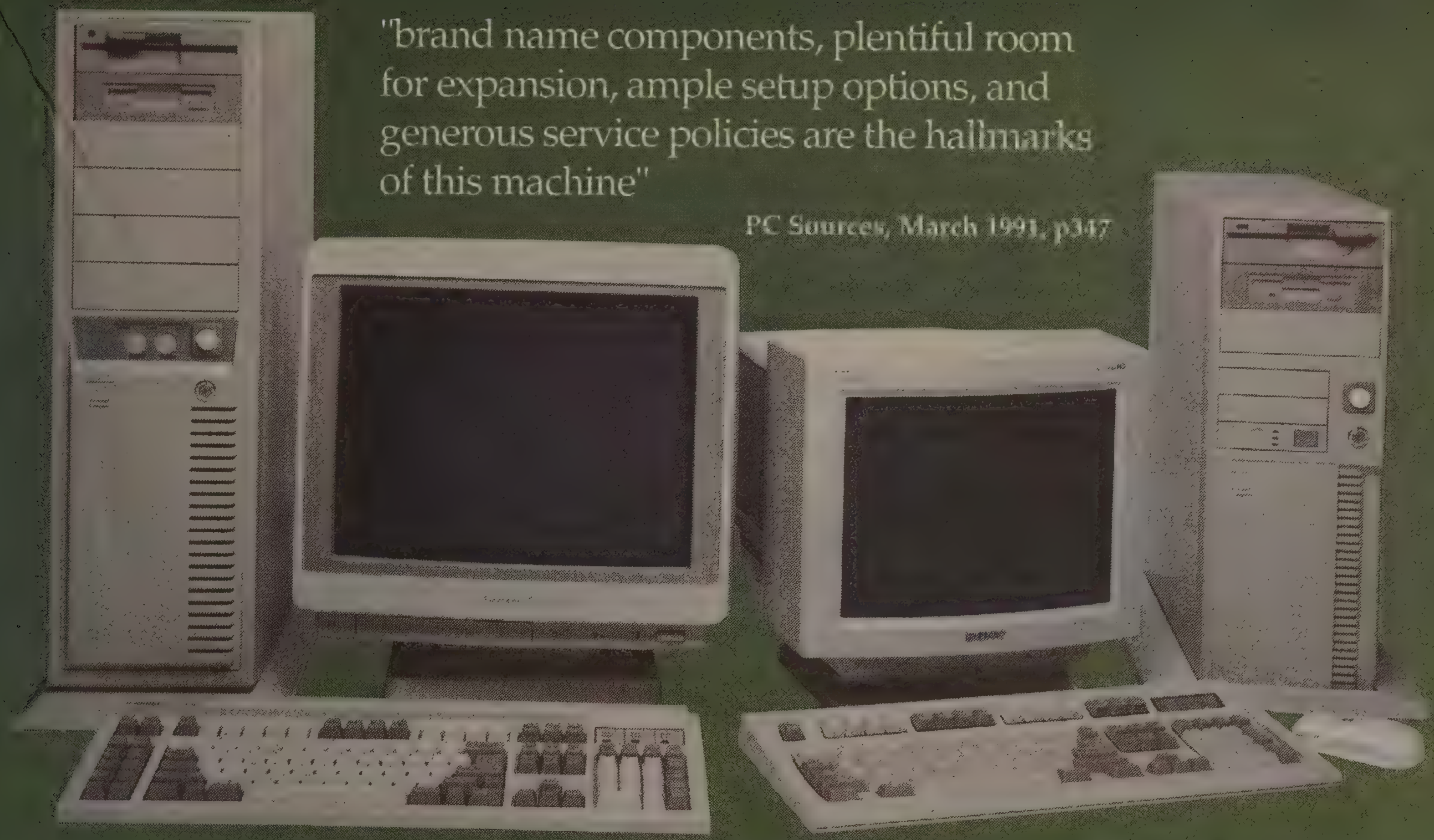

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PC Sources, March 1991, p347

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Computer Shopper Magazine June 1991, p246

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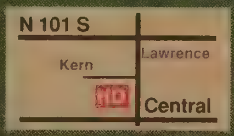

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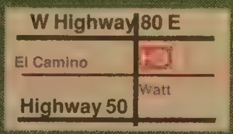

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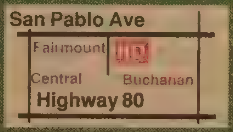

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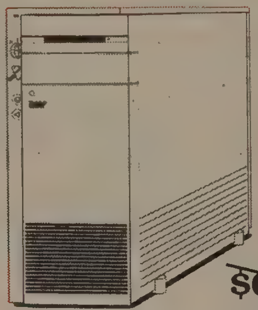

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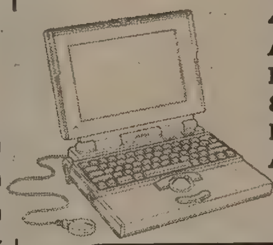

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Mac Goes Back To School

...And Meets Some New Viruses

BY DAVID MORGENSTERN

BMUG

It's time for the confession of a guilty secret—I'm a sports fan. My wife and daughter bow their heads and sigh every football, basketball, and baseball season. You may not be aware of the tremendous physical and mental sacrifices I made making the deadline for this month's column.

I moved my Mac closer to the television, but suffered a severe bout of whiplash each time I abruptly turned my head away from the keyboard to catch every metallic moment of the Olympic telecast. I've also learned never to perform critical SCSI surgery while listening to the Giants lose a ball game. Even the most fault-tolerant software interface has trouble when a fist unexpectedly smashes a dozen keys at once. Fortunately, there's a free world-class sports event every week in Berkeley—the BMUG main meeting. Play attention!

MAGNA CUM BMUG

It's the season to be studying again and exercising the little gray cells. Many universities offer educational discounts on Macintosh hardware and software, but that's not the only place to find a deal. Here are some hints for parents and students that care more for PRAMs than proms:

•The PowerBook 100, the poor relation of the Apple notebook family, has found its way into the consumer electronic and fresh produce markets. The Price Club, a popular discount chain, is pushing the 4/40 (4MB of RAM and a 40MB hard disk drive) configuration for only $885! This is a genuine bargain for buyers on a limited budget—better even than the gallon jar of marinated artichokes further down the aisle.

The PowerBook 100 suffered in comparison with its faster and more powerful notebook cousins, and poor sales have given it a loser label. However, it is an excellent machine for students, especially at the reduced price. It's lightweight, has a sharp display, and can go to the places where class work really gets done—the library and the coffee house.

The PB 100 has the ability to operate as an external hard drive when hooked with a special SCSI cable to a desktop Macintosh. You should also consider purchasing an external floppy SuperDrive, since the PB 100 doesn't have one built in.

If I weren't still paying off my original 512K Mac, I'd pick up one of these notebooks. I could watch the ball game from bed and work on the column. If it was good enough for Proust...

•When people buy computers, they frequently forget to set aside sufficient bucks for all the software they will need. Every computer user needs a word processor, but students may also find outliners, special dictionaries, and grammatical reference programs beneficial. Although some students will feel the need for grammar checking programs, everyone in school can use bibliographic software.

EndNote Plus by Niles and Associates almost makes writing a term paper fun. EndNote is a powerful database that knows all about bibliographic references and styles. It automatically generates a correctly formatted bibliography and footnotes for your paper. Instead of writing out notes on cards the old-fashioned way, you enter the data straight into EndNote. It has a powerful search engine that can speedily sort through thousands of references. The combination of a PowerBook and an EndNote database make a heavy-duty research assignment a piece of cake. Or pi. (Niles & Associates, Inc. 510/649-8176, fax 510/649-8179; internet: nilesinc@well.sf.ca.us; AppleLink: Niles.Assoc; America Online: NilesAssoc)

•Telecommunication is essential for students. Almost all university libraries now have their catalogs on computers and hooked into the campus network. Without leaving the questionable comfort of the dormitory, you can find out that the book you need is already checked out. Fortunately, the library across town is just a network address away. Perhaps you'll have better luck there.

I hear a lot of talk about the libraries of the future, with *everything* online and accessible from our desktops. That future is still a long way off—the here and now is still tied to paper. Digital card catalogs are only now becoming common. Full text retrieval of journal articles is limited, and prohibitively expensive for most students.

Even worse, these techno-dreams are being used as an excuse to cut support for the "old-fashioned" paper indexes, books, and periodicals needed by students now. The central planners only want to fund futuristic projects that capture the imagination. There's little glamor in making sure the books are on the shelves—but it makes all the difference to someone researching their class assignment. Flame off.

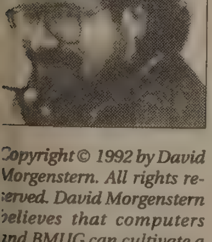
Telecommunication needs a modem, the device that connects your computer to the phone line. The new Supra Faxmodem V.32 bis had some early bugs to shake out, but it's a terrific value. This high-speed modem can be found in a bundle, with a hardware handshake cable, telecom and fax software, for around $375. If that's too rich, get the plain vanilla Supra 2400 baud modem for $125.

•Don't forget some small but important additions to your educational computer setup. Desktop Macintosh models can use a security kit. The kits include tabs that lock into slots on the back of the Mac or monitor, a galvanized steel cable, and a padlock. The cable is looped through holes in the tabs, and then through holes in the desk, or other heavy object. Your PowerBook is easily stuffed under the mattress.

The HardTop dustcover by Basic Needs has the best chance of surviving the rigors of college-level parties. Unlike cloth covers, the HardTop is made from stiff ABS plastic. They even have versions for the old Mac Plus that's going off to college so that Dad can buy a newer flavor of Macintosh.

T4 TOO AND TWO FOR T4

Nothing fills the heart of a BMUG HelpLine volunteer with fear more than the report of a *Trojan Horse.* A Trojan Horse is a program that masquerades as something harmless, then performs some covert action, usually destructive. The effects may be noticed immediately, when the program erases your



Copyright © 1992 by David Morgenstern. All rights reserved. *David Morgenstern believes that computers and BMUG can cultivate a positive change in the world. He volunteers time at BMUG, when he's not working his "regular job," writing, or prowling around the BMUG Bulletin Board. He can be reached hrough the BMUG office, AOL: daviD eM, CIS: 72030,1607, and Internet: davidm@sfsuvax1.sfsu.edu.*

hard disk, or later, when it acts as a time bomb, with some future ugly result. Unlike a computer virus, a Trojan Horse doesn't replicate itself—it's a one-shot job.

Trojan Horse programs are difficult to guard against. They perform actions that would be appropriate to a regular utility program. Of course, with a utility program you know when and where the drastic action will take place. It's not tossed in your lap like a hot potato!

In July, Neil Shapiro, the manager of MAUG, the Macintosh group on CompuServe, posted a message on the international networks describing a new Trojan Horse.

"Reward Offered for Information Leading to the Arrest and Conviction of Trojan Horse Author."
The MAUG Staff discovered an upload called CHINAT.CPT which, when we routinely examined the file, revealed itself to be a Trojan Horse program. The program, "ChinaTalk," purports to be a female voice for MacinTalk. But when run, it will overwrite the directory of any hard disk it finds online. (The same as choosing Erase from the Finder menu-bar)...

On behalf of MAUG, I am personally posting a $500 reward for information which leads to the arrest and conviction of this criminal. "Let's catch this pond scum and let's do it quickly!"

Neil was offering a pretty safe bet with that cheap $500 reward. I don't know that anyone is going to sell someone out for the price of a hard drive. Perhaps if he had offered a free year's worth of CompuServe time?

A new virus was also discovered in late June. The T4 virus was spotted at several locations worldwide, included in versions 2.0 and 2.1 of the game GoMoku. Copies of this game were posted to a Usenet newsgroup and to a number of popular bulletin boards. The BMUG BBS was bypassed on this unfortunate distribution.

The game was distributed on the Net under a false name. The name used in the posting, and embedded in the game's About Box, is reportedly that of a completely uninvolved person. The actual virus author is unknown, and there's a suspicion that the author used this person's name as a form of harassment.

The virus spreads to applications and the Finder. It also attempts to alter the System file. When the virus infects an application, it damages it in such a way that the application cannot be repaired.

Fortunately the virus doesn't do any other malicious action, other than try to spread itself. The T4 virus uses a trigger mechanism to spread. Most virus programs spread and keep on spreading regardless of the date. The strains of T4 (A and B) have different trigger dates. They wait until that date (or later) and then spread themselves.

Disinfectant 2.9 is the version written to handle the T4 virus. Unfortunately, when you use Disinfectant to try to repair a T4-infected application, Disinfectant removes the virus from the program, but leaves it damaged. Don't attempt to use the treated application; rather, reinstall it from your original disks. You locked them and put them under your pillow, right?

The change to the System file results in alterations to the startup code. Under System 6 and System 7.0, the change results in Init files and system extensions not loading. Under System 7.0.1, the change may render the system unbootable, or cause crashes. Disinfectant 2.9 cannot repair this damage to the System file. If the T4 virus screws up your System file, you will have to reinstall a fresh one.

If your system suddenly stops loading INIT and system extensions for no good reason, there's a chance you may have been attacked by the T4 virus. There's also the slight possibility that your Shift key might be sticking, since that's the System 7 method to disable extensions. It could happen.

The author of the T4 virus has written a further insidious trick. The virus masquerades as Disinfectant in an attempt to bypass general-purpose suspicious activity monitors like Gatekeeper. If you're running some other commercial or shareware INIT virus checkers, you see an alert telling you that "Disinfectant" is trying to make some change

Continued on page 280

Shareware Spotlight

Back-to-school month leads us to the education section of the BMUG Library. It's an unusual collection, with software for students of all ages. The disks are available from the BMUG office and cost $4 each. Here's a sampler of the better programs:

- The Education 6 disk is filled with arithmetic drills and games for kids. The best of the bunch is Monster Chase Math. If you answer the questions correctly, you move ahead of the monster. Wrong answers and he gains on you. A brutal combination—lessons in math and in the law of the jungle.
- Nicolas Mercouroff from Cambridge has written a hit with MacAstro 1.3.1. It's a star-charting astronomy program. The virtual planetarium gives you the sky view from any position on the Earth. It can be found on the Education 28 disk.
- If you need to drill anything, you'll like VocabQuiz 1.4 from Mike Gleason, Jr. of Omaha, Nebraska. This program allows you to create drill lists of twenty-five words and definitions. It automatically keeps a tally of right and wrong answers, percentage, and even a letter grade. VocabQuiz comes with a bunch of prepared examples, including the world's capitals and SAT English drills.

It has the best icon of any educational program, portraying a skull with a diploma gripped in its teeth and a pasteboard on its crown. You can find it on Education 15 disk.

- Thirty-two plays by William Shakespeare are available on Education 29–34 disks. They are in Microsoft Word format, with a separate document for each act. To BMUG, or not to BMUG. That's not the question—everybody wants to be a BMUGer!

What Is BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information and provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its thirteen thousand international membership. BMUG supports many Special Interest Groups (SIGs), Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6–9 pm (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West is a meeting held monthly in the Exploratorium, San Francisco's science museum.

The BMUG Office, 2055 Center Street (a half block from the BART station) is open to the public from 9 am to 5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am–5 pm). If your question can't be answered on the spot, we try to get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with hundreds of disks filled with the latest versions of public domain or shareware programs, and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *TV-ROM*™, a fantastic collection of public domain QuickTime videos.

Our sixteen-line BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are, as well as send mail to users everywhere! With our multi-line capability, you can have access to BMUG almost twenty-four hours a day. It's easy to use, fun, and a great resource.

BMUG can be found on most electronic services. BMUG can also be reached through the international USENET network through bmug@garnet.berkeley.edu.

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Bill O'Brien PC Magazine November 12, 1991

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- 2 Serial, 1 Parallel & 1 Game Ports
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- IDE Controller 2H/2F
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The conference begins at 9 am on September 22 with opinions from Jonathan Seybold, John Sculley, and Steve Jobs; it continues through September 24. The Expo opens at 10 am on September 23 and runs through the 25th. For registration and other information, contact Seybold Seminars, 1-800-777-6650.

Don't miss our next issue, #100, featuring an in-depth interview of Jonathan Seybold by John Perry Barlow.

CONFERENCE SCHEDULE

TUESDAY, SEPTEMBER 22

■ 9 am–10:30 am

The Evolving Process of Communications
- Jonathan Seybold
- John Sculley, Apple Computer
- Steve Jobs, NeXT

Moderator: Jonathan Seybold

■ 11 am–12:30 pm

The Evolving Process of Communications
- Barton Faber, R.R. Donnelley
- Chuck Geschke, Adobe
- Efi Arazi, EFI

Moderator: Jonathan Seybold

■ 2:30 pm–4 pm

A. New Technologies
- Nathan Myhrvold, Microsoft
- David Nagle, Apple
- Wayne Rosing, Sun Laboratories

Moderator: Jonathan Seybold

B. Using the Macintosh for Publishing
- Ron Fernandez, Apple
- Eric Zocher, Adobe
- David Roberts, Aldus

Moderator: Craig Cline

C. Targeting Print

Moderator: Andy Tribute

■ 4:30 pm–6 pm

A. New Paradigms
- Bob Anderson, Xerox PARC
- Georgia McCabe, Kodak
- Sally Rosenthal, Big Research/Magic Box Productions

Moderator: Jonathan Seybold

B. Using Windows for Publishing
- John Butler, Seybold
- Mike Gould, CNI
- Dave Ciuba, Aldus

Moderator: Craig Cline

C. Electronic Distribution
- William Spaller, Adobe

Moderator: Mark Walter

■ 7:30 pm–9 pm

A. Turning Color Production Upside Down
- John Stewart, Barneyscan
- Patrick Bergman, Barco Graphics
- Ray Hammond, The Last Word

Moderator: Jonathan Seybold

B. Modular/Component Software: The Future of Publishing?
- Paul Trevithick, Archetype
- Will Whittiker, XChange
- Thomas Siebel, GAIN Technology

Moderator: Craig Cline

C. Font Free-For-All
- Kevin Wandryk, Adobe
- Robert Norton, Microsoft
- Brian Lawley, Apple

Moderator: Cynthia Hollandsworth

D. How to Make PostScript Run Faster
- David McGahey, Varityper
- Ira Gold
- David Earl, Harlequin

Moderator: Molly Joss

E. Digital Photography: Ethical Issues
- Pedro Meyer
- Steve Schaffran, Color Group
- Mark Raddiffe, Ware & Freidenrich

Moderator: Peter Karnig

F. Are Computers Safe?

Moderator: Denise Caruso

WEDNESDAY, SEPTEMBER 23

■ 8:30 am–10 am

A. Color Management Systems
- Jim King, Adobe
- Scott Brownstein, Kodak
- Adam Stock, EFI

Moderator: Jonathan Seybold

B. Publishing with Interactive Media
- Michael Mellin, Random House
- Greg Roach, Hyperbole

Moderator: David Baron

C. Document Management and Retrieval
- Bruce Duff, Information Dimensions
- Cliff Reid, Verity
- Carl Frappaolo, Delphi Consulting Group

Moderator: Jeff James

D. Advertising in a Digital World
- Alan Darling, Quad/Text
- Jay Sandom, Einstein and Sandom, Inc.
- Barri Klingaman, MacWEEK

Moderator: Denise Caruso

E. Type
- Kevin Wandryk, Adobe
- Peter Pathe, Microsoft
- Brian Lawley, Apple
- Alex Morrow, Lotus
- Tim Gill, Quark

Moderator: David Berlow

■ 1 pm–2 pm

A. Photo CD
- Alex Asmanis, Asmanis Design & Associates

Moderator: Jonathan Seybold

B. High Performance PostScript
- René Delbar, Agfa
- Richard Patterson, Hyphen
- Mark Maronde, Purup

Moderator: Pete Dyson

C. Authoring the Electronic Document
- Kent Summers, EJV Partners
- Naser Partobi, Bell Northern Research
- Charles Reamy, Pacific First Bank
- Carolyn Strong, Tektronics

Moderator: Nancy Erskine

D. Workgroup Solutions
- Andrew Clunies-Ross, Talbot Systems
- Mike Gold, CNI

Moderator: Bill Solimeno

E. Using OS/2 for Publishing

Moderator: Craig Cline

■ 2 pm–3 pm

A. High-Speed Desktop Color: A Case Study
- Bob Goodman, WhaleSong Project

Moderator: Jonathan Seybold

B. David Spencer on Medium Resolution Printers
- David Spencer

C. CD-ROM Distribution
- Steven Rappaport, Interactive Records

Moderator: George Alexander

D. Using UNIX for Publishing
- Katherine Parker, Sun
- Sue Egnato, SGI
- Dave LaDuke, NeXT

Moderator: Craig Cline

E. Image Compression
- Adriaan Ligtenberg, Storm Technology
- Scott Brownstein, Kodak

Moderator: Pete Dyson

■ 3:30 pm–4:30 pm

A. Electronic Image Capture to Print
- Yokio Oba, Toppan Printing Company
- Marriott Winchester, Graphic Tech, Inc.

Moderator: Jonathan Seybold

B. Seybold PostScript Test Tales
- Caren Eliezer
- Molly Joss, *speaker and moderator*

C. Softcopy Distribution
- Patricia Lauletta, Datapro
- Roger Fidler, Knight-Ridder
- Bob Cohen, Amdahl Corporation

Moderators: Nancy Erskine, Joel Wecksell

D. Case Studies: Advertising
- Sharon Lewis-Wilker, Wieden & Kennedy

Moderator: Kevin Howard

E. Case Studies: Books
- Mark Johnson, The Understanding Business?

Moderator: George Alexander

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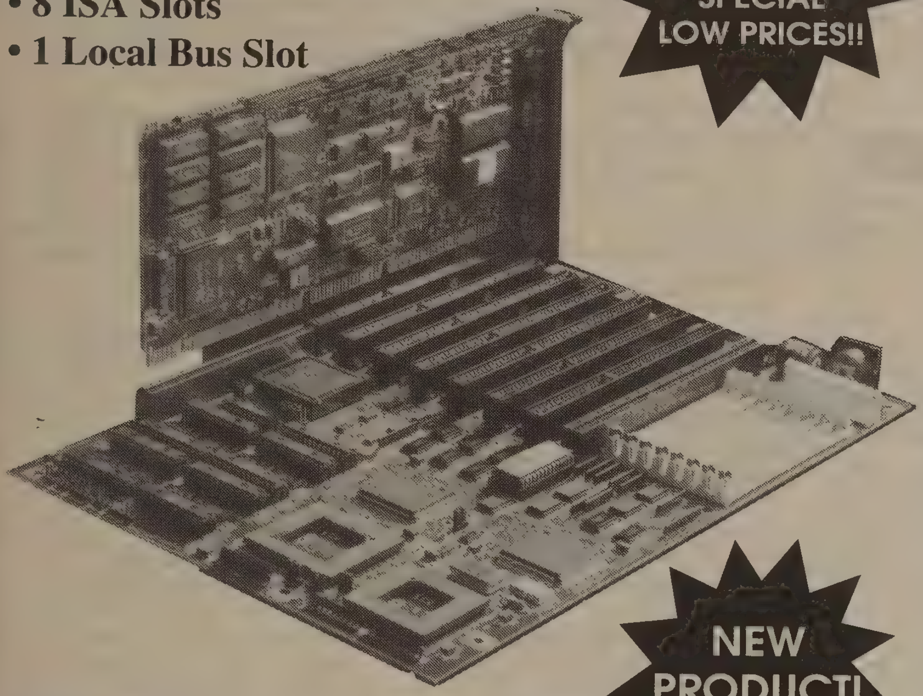

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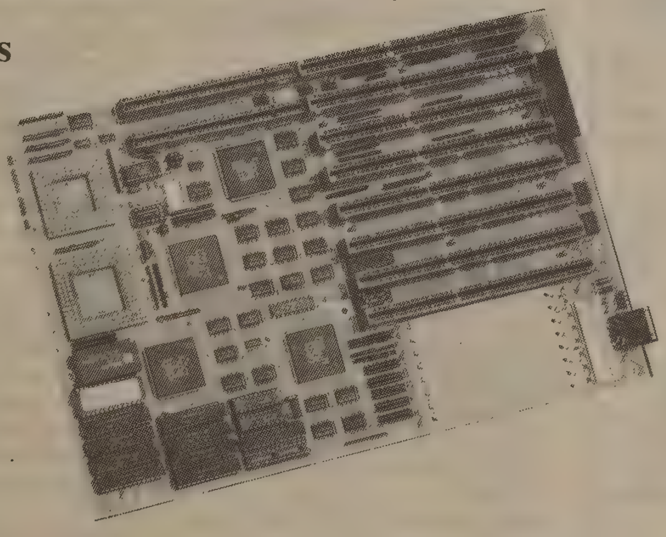

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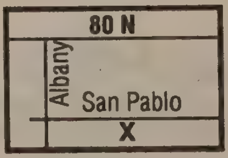

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PREVIEW

■ 4:30 pm–5:30 pm

A. Color Calibration: Dealing with the Press
Moderator: Jonathan Seybold

B. Pricing Desktop Jobs
- Thad McIllroy

C. On-Demand Distribution
- Don Lancaster
- Steve Marsh, Document Network
- Tim McBride, Bellcore

Moderator: George Alexander

D. Case Studies: Design
- Michael Sullivan, Imprimatur Design Systems
- Clement Mok, Clement Mok Designs
- Peter Bradford

Moderator: Janice Maloney

E. Case Studies: Magazines
Moderator: Barri Klingaman

■ 7:30 pm–9 pm

A. Ideographic Composition
- Walter Stewart, Ampac
- Erwin Huang, Total Solution DTP Ltd.
- Toshiya Hotei, Qualitas Trading Co./Ayumi Software
- Jim Lewis, Lasermaster
- Hiroshi Kameda

Moderators: Steve Edwards, Dr. James Caldwell

B. SGML: Business Perspectives and Case Studies
- Dale Waldt, Thompson Professional Publishing
- Yuri Rubinsky, SoftQuad

Moderator: Mark Walter

C. Application/Platform Specific Bull Sessions
QuarkXPress, CopyDesk & Xtensions
Aldus PageMaker
Ventura Publisher
Frame Technology's FrameMaker
Adobe's Photoshop
High-Resolution PostScript Output
Macintosh Publishing
Windows Publishing

THURSDAY, SEPTEMBER 24

■ 8:30 am–10 am

A. Color Screening Shootout
- Ira Gold
- Miles Southworth
- Mike Winn, Judd's Incorporated
- Grant Hall, American Color
- Jan Griffin, L.L. Bean
- Liane Sebastian
- Frank Scott, Time Inc.

Moderators: Jonathan Seybold, Caren Eliezer

B. Using Telecommunications for Print Production
- Todd Melet, Business Link Communications
- Javier Romero, Javier Romero Design Ltd.
- Allan Marshall, Associated Newspapers

Moderator: Pete Dyson

C. Futures of Electronic Delivery
- John Evans, News Ltd.
- Michael Mellin, Random House
- David Dobkin, R.R. Donnelley

Moderator: David Baron

D. Industrial Strength Systems
- Brian Anderson, Contex
- Mike Neville, Southdown Press
- Dwight Ernest, Consultant
- Vito Foderaro, DEC
- John Seibt, ABV Graphics

Moderator: Craig Cline

■ 10:30 am–12:00 noon

A. Meet the Stars: Restructuring the Industry
- Tim Gill, Quark
- Paul Brainerd, Aldus
- John Warnock, Adobe

Moderator: Jonathan Seybold

B. Color Screening Shootout: The Vendors Respond
Moderators: Caren Eliezer, Andy Tribute

■ 1:30 pm–3 pm

A. How to Overcome the Deficiencies of PostScript for High-Quality Color
- Don Hahn, Adobe
- Georg Pfeiffer, Linotype-Hell
- Andy Tribute, *Speaker and Moderator*

B. New Working Relationships: Coping with Real World Problems in PostScript Production
- Ed Fleiss, AISB
- Steve Howell, Sara Lee Company
- Joe Metzger, Metzger PrePress
- Liane Sebastian, ADEPT

Moderator: Van Tanner

C. Education & Training
- Rick Rabideaux, Apple
- John McWade, Before & After Magazine
- Charles Altschul, Kodak (Camden, Maine)
- Frank Catalano

Moderator: Bruce Kaplan

D. Interactive Training
- Suzanne Biegel, Internal & External Communications
- Alexandra Rand, Internal & External Communications

Moderator: David Baron

E. Case Studies: Newspapers
- Roberto Gutierrez, La Nacion
- Jaime Mantilla, Hoy
- Jesus Rodriguez, El Norte

Moderator: Steven Schaffran

■ 3:30 pm–5 pm

A. Discussion: Newspapers & Magazines
- Harry Dahl, III
- Al Edwards, Systems Integrators, Inc.

Moderator: Bill Solimeno

B. Discussion: Service Bureaus & Imagesetter Centers
- Daniel Clark, Raging Fingers
- Others TBA

Moderator: Van Tanner

C. Discussion: Design
- Kit Hinrichs, Pentagram
- Louis Fisauff, Reactor Art & Design
- Russell Brown, Adobe

Moderator: Janice Maloney

D. Discussion: Corporate/In-Plant
Moderators: Nancy Erskine, Joel Wecksell

E. Discussion: Printers
- Raymond Austin, Judds
- Dinah George, Dobbs
- Frank Scott, Time, Inc.
- Art Davis, AOPA PILOT

Moderator: Mike Winn, Judds

F. Discussion: Catalogs

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486-50 EISA&LOCAL BUS /256K	$1545
486DX2-50 EISA&LOCAL BUS	$1195
486-50 ISA W/256K CACHE	$1245
486-33 EISA&LOCAL BUS /256K	$1135
486-33 ISA W/64K CACHE GCP	$785
386-33 64K CACHE GCP-ASIC	$410
MCC-USA	
486DX-50 EISA W/64K CACHE	$1195
486DX-33 ISA W/64K CACHE	$820
486DX-33 ISA W/64K CACHE	$570
OTHERS	
486DX-33 EISA W/64K CACHE	$795
486DX-50 ISA W/64K CACHE	$785
486DX-33 ISA W/64K CACHE	$540
386DX-40 ISA W/64K CACHE	$265
386DX-33 ISA W/64K CACHE	$260
386SX-25 ISA, W/CPU	$155

MONITORS

NEC	
5FG 17", 0.28, 1280X1024 NI	$1435
4FG/3FGx 15".28,1024X768	$769/685
SONY	
1304S 14" 1024X768 NI, 0.25	$570
1604S 17" 1024X768 NI, 0.25	$1070
MITSUBISHI	
FS6605ATK16",0.28,1024X768	$975
NANO	
T550i 17", 1280X1024	$1095
VIEWSONIC	
V-8 20" 1280X1024 NON-INT	$1625
V-7 17" 1280X1024 NON-INT	$1080
V-6 14"1024X768 NI, 0.28	$365
V-5+ 14" 1024X768, NI, 0.25	$540
V-4E 14" 1024X768, 0.29	$320
V-2 14" 640X480, 0.28	$290
V-1 14" 640X480, 0.39	$230

VIDEO CARDS

ORCHID FAHRENHEIT 1280 W/1MB, W/SIERRA,72Hz,32k colors	$269
ORCHID PRO-DESIGNER IIS W/1M W/SIERRA,72Hz,32k colors	$185
DIAMOND STEALTH 1280 W/1MB W/SIERRA, 72Hz,32k colors	$269
ATI GRAPHICS ULTRA 1M, 70Hz	$425
GENOA 7900 Multimedia VGA 16million colors, 72Hz,w/1MB	$175
TRIDENT 1024X768, W/1M	$85
GENERIC SVGA 1024 W/512K	$65
GENERIC VGA 800X600 W/256K	$45

MONTHLY SPECIALS

* 486-COOLER (Stops overheat problem with 486-33, 486-50, and 486-66 Microprcessors)	$29.95
* Super I/O Card with 256K Baud serial port	$39.95
* SCSI Hard Drive Specials:	
FUJITSU M2624FA/520MB,12MS	$999.99
CONNER CP3540/540MB,14MS	$899.99
MAXTOR LXT340S/340MB,15MS	$799.99
MAXTOR 7213SR/213MB,15MS	$519.99

I/O CARDS

2S,1P,1G	$20
RS-232 CARD/PRINTER CARD	$17/18

TAPE BACK-UP

COLORADO	
DJ-10 (40,60,120MB)	$205
DJ-20 (250MB)	$279

LASER PRINTERS

HP LASER	
IIP+/IIIP/III (W/TONER)	$795/999/1485
MEMORY CARD FOR IIP+,III,IIIP,IIID 1M $85, 2M $120, 3M $162, 4M $205	

HARD DISK DRIVES

CONNER	
CP-3000 IDE 40MB 28MS	$209
CP-30104 IDE 120MB 19MS	$325
CP-3204 IDE 200MB 16MS	$515
CP3360/360MB SCSI	$650
CP3504/504MB IDE	$820
SEAGATE	
ST-157A IDE 40MB 28MS	$225
ST 4766N SCSI 670MB,16MS	$1295
MAXTOR	
XT7080A 80MB 17MS IDE	$295
XT7120A 120MB 15MS IDE	$360
XT4170E/S 154MB 14MS	$595
XT7213A 213MB 15MS	$495
XT4380E/S 338MB 16MS	$995
XT8760E/S 676MB 16MS	$1350
LXT213 213MB 15MS IDE/SCSI	$560
LXT340 340MB 15MS IDE/SCSI	$980
PO-12S 1.02GB 13MS SCSI	$1775
P1-17S 1.47GB 13MS SCSI	$2245
FUJITSU	
M2622 IDE/SCSI3.5"330M,12MS	$950
M2623 IDE/SCSI3.5"425M,12MS	$1040
M2624 IDE/SCSI3.5"520M,12MS	$1000
M2266 SCSI, 51/4" 1.2GB,16MS	$1925
QUANTUM	
LPS52 IDE/SCSI 52MB,19MS	$235/255
LPS120 IDE/SCSI 16MS	$365
LPS240 IDE/SCSI 16MS	$645/690

FLOPPY DRIVES

TEAC 1.2MB 5.25"	$62
TEAC 1.44MB 3.5"	$60
TEAC 2.88MB 3.5"	$115
TEAC 1.2MB & 1.44MB 2-IN-1	$139

DRIVE CONTROLLERS

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6282-24 ESDI 24Mbit/SEC,2F/4H	$165
3280 SCSI 7HD/2FD	$125
3290 AS SCSI EISA 7HD/4FD With 1MB/4MB	$625/745
ULTRASTOR	
ULT 12F ESDI w/32K cache	$165
ULT-22F EISA ESDI w/64k cache	$485
ULT-22C EISA ESDI w/1M up 16MB, 33Mb/s	$695
ULT-14F SCSI I&II 10MB/sec	$245
ULT-24F SCSI I&II 33MB/sec 64K	$510
CSC	
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FASTCACHE-64 SCSI 7H4F 1MB	$295
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AHA-1742/Kit EISA SCSI	$470/499
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IDE CONTROLLER W/2FD&2HD	$22
IDE CONTROLLER W/4FD&2HD	$45
IDE W/2FD/2HD&2S,1P,1G	$40

MODEMS

24/96 FAX MODEM (S&R) INTL	$95
24/96 F/MODEM (S&R)EXT MNP5	$149
2400 INTL MODEM	65

CD-ROM

SONY CDU 53511 INTL BUS kit	$355
SONY CDU 54101 INTL SCSI kit	$525
SONY CDU 7205 EXTL BUS kit	$565
SONY CDU 7211 EXTL SCSI kit	$635
* MULTIMEDIA Upgrade Kit (Panasonic CD-ROM, Sound Blaster Pro, MIDI kit, 5 MULTIMEDIA CD Disks)	$559
* CD-ROM SOFTWARE PACKAGE: 5 DISKS (Encyclopedia, World Atlas, Reference Library, Time Table of History CD Game Pack	$109
Pro Audio Spectrum 16 BIT	$219
Pro Audio Spectrum Plus	$189

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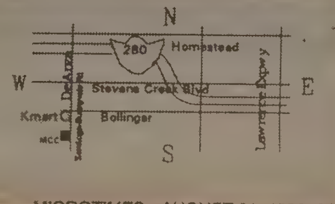

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San Fran cis co (san′frən sis′kō-) *n.* **1.** seaport on the coast of north central California, separated from Oakland by an inlet, and from the rest of the U.S. by a state of mind; **2.** setting for fabulous restaurants, entertaining diversions and memorable encounters; **3.** where Seybold (see above) will be this September.

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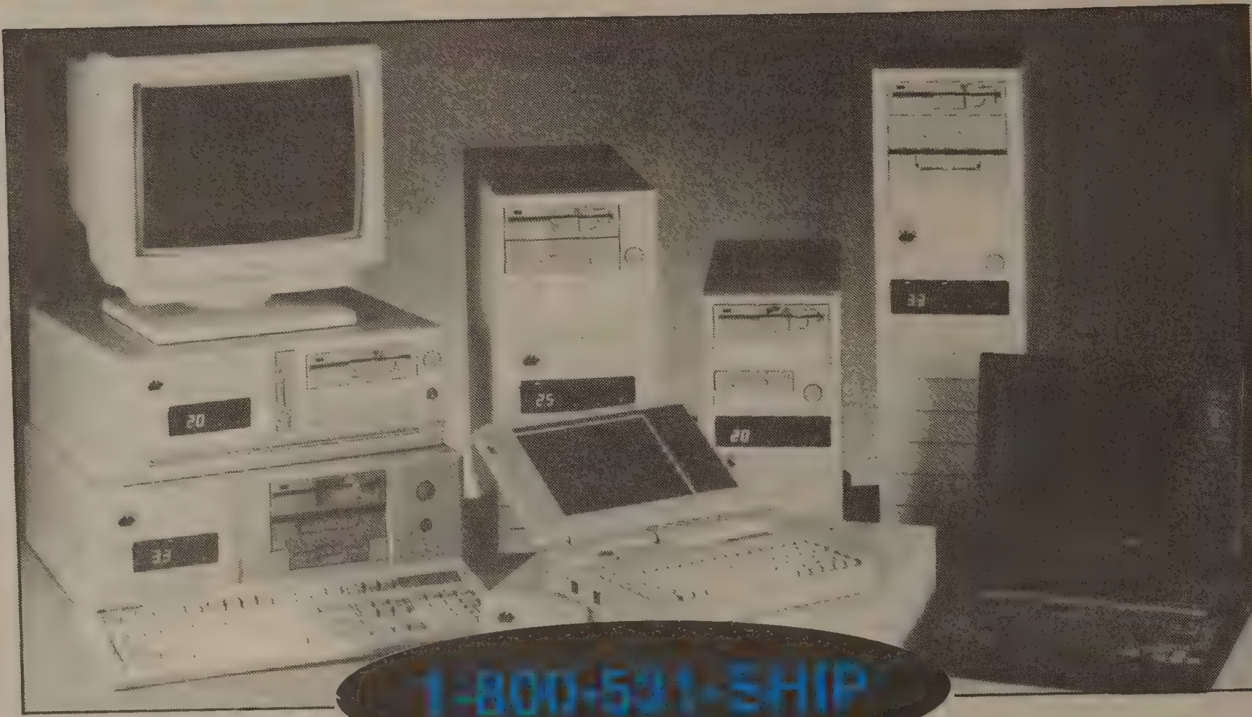

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- MS-DOS 5.0

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RESOURCES

Calendar Of Events

SEPTEMBER

September 1 Windows 3.1, Level One Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 2 Intro To The Macintosh, System 7 Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 3 Beginning dBASE IV Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

September 3 Beginning PowerPoint Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 3 Intro To MacDraw Pro Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 3 Intro To The PC/Beginning DOS 5.0 Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 5 Computer Show & Sale. Alameda County Fairgrounds. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

September 6 Computer Show & Sale. Sheraton Hotel, Concord. MarketPro. Call: (415)388-8893.

September 6 Old Fashion Swap. Livermore. Computers & Ham Radio. Call: (510)447-7118.

September 8 Intro To FoxPro 2.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

OCTOBER 30–NOVEMBER 1

THIRD ANNUAL MACROMEDIA INTERNATIONAL USER CONFERENCE

San Francisco

The theme of the 1992 conference is "Multiplatform. Multimedia. Designs for Success." The agenda features two split tracks in the afternoon for business and technology. Business track discussions will focus on business planning and management, corporate presentations, publishing, and cross-platform authoring. Technical track discussions will include video technology, building reusable models in Authorware, and using XObjects in Director. Keynote speaker presentations will include Apple Computer's John Sculley, IBM's Michael Braun, and Marc Canter. To register, call: 1-800-672-2700.

September 8 WordPerfect For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 9 Intro To Windows 3.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

September 9 Microsoft Excel Course. San Jose. Abacus Training. Call: (415)974-7200.

September 9 WordPerfect 5.1, Level One Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 9 WordPerfect For DOS Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 10 Adobe PhotoShop Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 10 CorelDRAW Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 10–11 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 11 Intro To Paradox Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 11 Microsoft Excel Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 12 Computer Show & Sale. Hayward. MarketPro. Call: (415)388-8893.

September 12 Computer Show & Sale. Santa Clara County Fairgrounds. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

September 13 Computer Show & Sale. Sonoma County Fairgrounds. MarketPro. Call: (415)388-8893.

September 13 WordPerfect 5.1, Level Two Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 13–16 19th Annual Information Systems Conference: Challenge The Future. Monterey. Food Marketing Institute. Call: Kathy Foster. (202)452-8444.

September 14 Windows 3.1, Level Two Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 14–15 Novell System Supervisor 3.11 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

SEPTEMBER 3

MOBILE PEN COMPUTING

Santa Clara

Computer Literacy Bookshops will present Robert Carr, cofounder of GO Corp. He will discuss the current and future opportunities for software developers who wish to develop applications for mobile pen computers in general, and the PenPoint operating system in specific. $10, limited seating, 6:30 at UC Santa Cruz Extension, 3120 De la Cruz Blvd., Santa Clara. 1-800-660-UNEX.

September 15 Aldus FreeHand Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 15 Intermediate Paradox 3.5 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

September 15 Intro To DOS Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 15–16 PICK/UNIX/DOS Alternative Conference. San Jose. International Spectrum. Call: (619)578-3152.

September 16 Lotus 1-2-3: Spreadsheet I Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

September 16 Microsoft Excel Charts Course. San Jose. Abacus Training. Call: (415)974-7200.

September 16 PC Platforms: DOS, Windows, OS/2, UNIX Seminar. Pleasant Hill. Assn. for Systems Management, East Bay Chapter. Call: (510)658-4668.

September 17 Accounting Systems Seminar: Tax And Managerial Reporting. Oakland. David Simon, CPA. Call: (510)893-5753.

September 17 Intro To Networks Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 17 Intro WordPerfect For Windows 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

September 18 Advanced WordPerfect 5.1

Continued

Calendar Of Events continued

Class. **Emeryville.** Northwest Computer Systems. Call: (510)653-0808.

September 18 Intro To Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 19 Computer Mart. Cupertino. De Anza College Special Events. Call: (408)864-8350.

September 19 Computer Show & Sale. Oakland Coliseum. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

September 19 Intro To Networks Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 20 Computer Show. San Francisco. Ft. Mason Shows. Call: (916)725-0228.

September 20 Computer Show & Sale. Solano County Fairgrounds. MarketPro. Call: (415)388-8893.

September 21 Intro To WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 21 MacWrite Pro Course. San Jose. Abacus Training. Call: (415)974-7200.

September 21 SmartColor '92 Seminar. Palo Alto. Savitar. Call: Sarah Mlyneux, (415)243-3030.

September 21–23 Time Line 5.0: Project Management Software Workshop. San Francisco. Symantec Training Group. Call: 1-800-786-8620.

September 21–24 The Fourth Annual Embedded Systems Conference. Santa Clara. *Embedded Systems Programming* Magazine. Call: (214)245-8700.

September 21–25 C Plus C++...In Action Conference And Exposition. Santa Clara. Boston University. Call: Operations Dept., (508)649-9731, ext. 248.

September 22 Beginning Quark XPress Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 22 Intro To Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 23 Advanced Adobe Illustrator Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 23 Advanced Microsoft Word For The Mac Course. San Jose. Abacus Training. Call: (415)974-7200.

September 23 Beginning Excel 4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

September 23 WordPerfect Desktop Publishing Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 23 WordPerfect 5.1, Level Three Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 23–25 Seybold San Francisco Conference. San Francisco. Seybold Seminars. Call: 1-800-777-6650.

September 23–25 Third Annual Virtual Reality Conference. San Jose. Meckler Corp. Call: 1-800-635-5537.

September 24 Beginning PowerPoint Course. San Jose. Abacus Training. Call: (415)974-7200.

September 24 Intermediate Excel For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 24 Intro To MacDraw Pro Course. San Jose. Abacus Training. Call: (415)974-7200.

September 24 Microsoft Excel Charts Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 24 Wireless LAN Seminar. Oakland. Informational Data Network. Call: (510)465-9084.

September 24 WordPerfect For The Legal Profession Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 24–25 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 24–25 Q&A: Database/Word Processing Software Workshop. San Francisco. Symantec Training Group. Call: 1-800-786-8620.

September 25 Intermediate Excel 4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

September 25 Intermediate WordPerfect For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 26 Computer Show & Sale. Cow Palace. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

September 26 & October 3 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 28 Advanced Microsoft Word For The Mac Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 28–30 NetWare 386 Administration Course. San Francisco. Abacus Training. Call: (415)974-7200.

September 29 Intermediate WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 30 Microsoft Excel Macros Course. San Francisco. Abacus Training. Call: (415)974-7200.

OCTOBER

October 3 Computer Show & Sale. Santa Clara County Fairgrounds. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

October 4 Old Fashion Swap. Livermore. Computers & Ham Radio. Call: (510)447-7118.

October 5–6 Intro To UNIX Workshop. San Francisco. UC Berkeley, Extension. Call: (510)323-8141.

October 7 Intro To Networks Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 7–8 Intro To MS-DOS 5.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

October 7–9 Time Line 5.0: Project Management Software Workshop. San Francisco. Symantec Training Group. Call: 1-800-786-8620.

October 8–9 CCI Concurrent Training Seminar. San Francisco. CCI Concurrent. Call: (415)873-6240.

October 8–9 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 9 Beginning WordPerfect 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

October 10 Build & Upgrade An IBM PC Clone Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 10 Computer Show & Sale. Cow Palace. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

October 13 Intro To Windows 3.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

October 14 Beginning Excel 4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

October 14–18 International Computer Music Conference. San Jose. ICMA. Call: (408)924-4675. Email: icmc@sjsuvm1.bitnet

October 15 Accounting Systems Seminar: Tax And Managerial Reporting. Oakland. David Simon, CPA. Call: (510)893-5753.

October 16 Intermediate WordPerfect 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

October 17 Computer Mart. Cupertino. De

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SYSTEM	MB CPU	BASIC SYSTEM
EISA 486/50 W/256K	$1078	$1252
EISA 486/50 W/64K	1048	1222
EISA 486-33 W/256K	835	1009
EISA 486-33 W/64K	805	979
ISA 486-50 W/256K	650	824
ISA 486-50 W/64K	620	794
ISA 486-33 W/256K	485	659
ISA 486-33 W/64K	455	629

SYSTEM	MB CPU	BASIC SYSTEM	MONTHLY SPECIALS
486SX-20	$185	$359	• 486-33 W/64K CACHE LOCAL BUS W/S3 1 MB VGA CARD & IDE I/O $407
386-40 W/64K	182	356	
386-33 W/64K	170	344	•MINI TOWER CASE W/230W P.S. $52
386DX-25	144	318	
386SX-25	101	275	•TRIDENT 1 MB VGA CARD $59
386SX-16	93	267	
286-16	57	231	•GENOA 7900 W/ 1MB VGA 640X480 IN 16 MILLION COLORS $149
286-12	55	229	

BASIC SYSTEM INCLUDES: 486/386/286 Motherboard • 486/386/286 CPU • 1 MB RAM • 101 Keyboard • 1.2 MB or 1.44 MB Floppy Drive • Baby AT or Mini Tower Case with Power Supply • 2FDD & 2HDD Controller Card w/Cable

1 YEAR WARRANTY PARTS & LABOR ON SYSTEMS

MOTHERBOARDS

EISA

486-50 w/256K	$583
486-50 w/64K	558
486-33 w/256K	495
486-33 w/128K	470
486-33 w/64K	451

ISA

486-50 w/256K	$145
486-50 w/128K	129
486-50 w/64K	112
486-33 w/256K	140
486-33 w/128K	124
486-33 w/64K	119
486-25 w/128K	122
486 & 386 SPECIAL BOARDS	121
486-33	96
486SX-20	88
386-40 w/64K	105
386-33 w/64K	103
386-25 No Cache	86
386SX-25 w/CPU Half	101
386SX-16 Half	93
286-20	71
286-16	57
286-12	55
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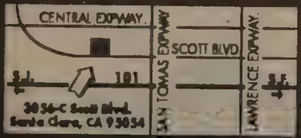

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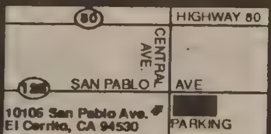

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Anza College Special Events. Call: (408)864-8350.

October 17 Computer Show & Sale. Oakland Coliseum. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

October 17 Intro To Networks Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 17–20 Ink Jet Printing Conference. San Jose. BIS Strategic Decisions. Call: 1-800-874-9980.

October 18 Computer Show. San Francisco. Ft. Mason Shows. Call: (916)725-0228.

October 21 Beginning Word 2.0 For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

October 22 Intro WordPerfect For Windows 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

October 22–23 Q&A: Database/Word Processing Software Workshop. San Francisco. Symantec Training Group. Call: 1-800-786-8620.

October 24 & 31 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 25–29 Windows 3.1 Training Seminars And Workshops. San Jose. Descriptor Systems. Call: Joel Barnum, 1-800-528-9960. CompuServe: 70047,442.

October 26–27 Second Industry Symposium On Virtual Worlds Technology. University of Washington. HIT Lab in conjunction with the Washington Technology Center. Call: (206)543-5075.

October 26–28 Electronic Messaging '92 Conference: Golden Opportunities. San Francisco. Electronic Mail Assoc. Call: (708)875-8620.

October 26–30 Windows International Developers Conference. Santa Clara. Boston University. Call: (508)649-9731, ext. 248.

October 28 Intermediate Excel 4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

October 29 Intro To Networks Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 30–November 1 Third Annual Macromedia International User Conference. San Francisco. Macromedia. Call: 1-800-672-2700.

NOVEMBER

November 8 Old Fashion Swap. Livermore. Computers & Ham Radio. Call: (510)447-7118.

November 11–13 Time Line 5.0: Project Management Software Workshop. San Francisco. Symantec Training Group. Call: 1-800-786-8620.

November 16–17 Project Planning Software Workshop. San Francisco. Symantec Training Group. Call: 1-800-786-8620.

November 19 Accounting Systems Seminar: Tax And Managerial Reporting. Oakland. David Simon, CPA. Call: (510)893-5753.

November 23–24 Q&A: Database/Word Processing Software Workshop. San Francisco. Symantec Training Group. Call: 1-800-786-8620. ■

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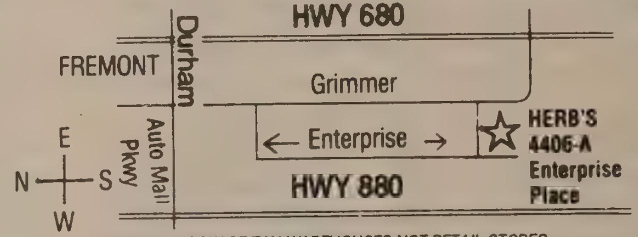

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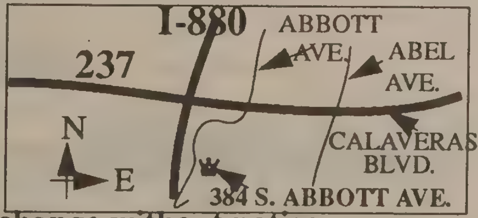

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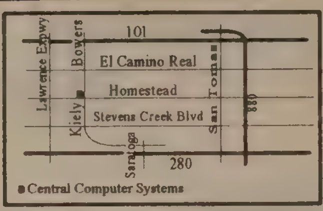

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9 MATH CO-PRO, CPU

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11 MEMORY CHIPS

DRAM	
1 MB x 1 - 8	$3.99
256K - 8	1.09
256K x 4 - 8	4.29
64K - 10	1.09
64K x 4 -8	1.65
SIMM	
4 MB x 9 - 6 / 7 / 8	129/119/109
1 MB x 9 - 6 / 7 / 8	33/31/29
256K x 9 - 8	10
Mac : 1 MB x 8 - 8	32
4 MB x 8 - 7 / 8	115/105
PS/2 : 256K x 36 = 1MB	59
512K x 36 = 2MB	109
1MB x 36 = 4MB	139
2MB x 36 = 8MB	269
SIPP	
1 MB x 9 - 8	37
256K x 9 - 8	12
KINGSTON MEMORY for Apple, AST, AT&T, Compaq,IBM,Nec,Sun	cal
LASER PRINTERS MEMORY UPGRADE for HP and Panasonic	see #10 or # 2
MEMORY UPGRADE for Laptop and Notebook Computer	cal

12 MODEMS & FAX

Konnexx 108 Connects modem to any telephone	$11

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820 Kiely Blvd. Santa Clara, CA 95051
Tel.: (408) 241-0185 FAX: (408) 241-0390

EVEREX

Evercom 2400 Baud Internal	79
Evercom 2400 Baud Internal w/ MNP5	139
Evercom 9600 v.32,v.42,v.42bis,MNP5 Int	495
Evercom 2400 Baud External w/ MNP5	185
Fax Modem 2400/9600 Internal w/ MNP5	239
Pocket Modem for Laptop 2400 w/ MNP5	215

FRECOM

Fax 96 w/ 1 Liner & Far Fetch Fax	135
Fax 96 & modem for DOS	119
Fax 96 & modem for Windows	129
Fax 96 w/ 1L&FFF & modem for DOS	169

HAYES

Optima 96 v.32,v.42,v.42bis, MNP 5, Ext	389
Pocket edition 2400 w/ Smartcom EZ	129
SmartModem 2400B Internal	245
SmartModem 2400B External	285
Ultra 96 v.32,v.32,v.42,v.42bis,MNP5 Ext	635
Ultra 144 v.32,v.32,v.32bis,v.42,v.42bis, MNP5, Ext	769
V-series SmartModem 9600 v.42,v.42bis,MNP5,Ext	489

INTEL

9600EX v.32,v.42,v.42bis Ext	459
14400EX v.32,v.32bis,v.42,v.42bis Ext	555
Faxability Plus/OCR for Windows	169
SatisFaxtion Modem/100 internal 96/24 fax modem, v.22 bis, v.22 A/B, fax from Dos/Win application WYPIWYF	89
SatisFaxtion Modem/200 internal 96/24 fax modem,v.42,v.42bis, MNP5,fax from DOS/Win application Smart line sharing, Smart UART buffering, WYPIWYF	299
SatisFaxtion Modem/400 internal 96/144 fax modemv.32,v.32bis, v.42,v.42bis,MNP5, fax fromDOS/Win application,smart UART buffering, smart line sharing, WYPIWYF	435
SatisFaxtion Modem/400e external 96/144 fax modem, v.32,v.32bis, v.42,v.42bis MNP5, fax fromDOS/Win application, 4K data buffer,WYPIWYF	499

MACRONIX

MaxLite 96/24 fax modem, int.	88
MaxLite 96/PC pocket fax modem v.32, v.42, v.42bis, MNP5, w/ WinFax software	329
MaxLite 144/PC pocket fax modem v.32bis, v.42, v.42bis, MNP5, w/ WinFax software	389

PRACTICAL PERIPHERALS

PM14400FX96 (14.4 modem 96 fax) v.32bis, int.	369
PM14400FX96SA v.32bis, ext	439

US ROBOTICS

Courier 144 v.32,v.32bis,v.42,v.42bis,MNP5, Int	535
Courier 144 v.32,v.32bis,v.42,v.42bis,MNP5, Ext	555
Sportster 2400 modem w/ Sierra Game int/ext.	99/109
Sportster 96/96 FAX MNP5, Int/Ext	289/319
Sportster 14.4 v.32bis, v.42bis, Int	309
Sportster 14.4 v.32bis, v.42bis, Ext.	339
Sportster 96/14.4 fax modem MNP5, Int/Ext	319/349
Shared Access Modem Sharing Kit	675

ZOLTRIX

2400 baud modem w/ MNP5, Int	49
96/24 send & receive fax/modem w/ MNP5, Int	75
96/24 send & receive fax/modem MNP5 v.42, Int	105
Pocket send & receive fax/modem, Ext	139

ZOOM

96/24 fax modem v.42bis, MNP5 Int / Ext	95/115
FC9624V/FX9624V	135/155
96/96 fax modme v.32, v.42bis, MNP5 Int / Ext.	245/265
144/144 fax modem Int / Ext.	299/329

13 MONITORS

9" VGA mono paper white	135

EMC

EM 1412 14" Mono paper white	95
EM 1417 14" 1024x768 VGA paper white	115
EM 1428 14" 1024x768 .28	289
EM 1439 14" 1024x768 .39	249

GOLDSTAR

1460 Plus 14" 1024x768	289

MATSUSHITA (VIEWSONIC)

Viewsonic 1 14", 640x480, .39, Int	235
ViewSonic 4e 14" , 1024x768, .28, Int	315
ViewSonic 5+ 14", 1024x768, .25, NI	525
viewSonic 5e 14", 1024x768, .28, NI.	425
ViewSonic 6e 14", 1024x768, .28, NI	355
ViewSonic 7 17", 1280x1024, .28, NI	1075
ViewSonic 8 20", 1280x1024, .31, NI	1595

MITSUBISHI (w/ base)

HL6605ATK 16", 1280x1024, NI.	925
HL6955SETK 20", 1280x1024, .31, NI.	1745
BNC Cable	39

NANAO

9070U 16", 1024x768, .28 NI	795
9080i 16", 1280x1024, .28 NI	975
T560i 17", 1280x1024, .25, NI	1895
F550i 17", 1280x1024, .28, NI	1175
T660 20", 1280x1024, .31 NI	1825
T660i 20", 1280x1024, .31, NI, Trinitron.	2595

NEC

3FGX 15", 1024x768, .28	649
4FG 15" Flat, 1024x768, .28, NI.	749
5FG 17" Flat,1280x1024, .28, NI	1375
5D 20" 1280x1024, .31, NI.	1595
6FG 21" Flat, 1280x1024, .28	2595
Monitor Lens Anti-reflection, Anti-static, Increased contrast for 4FG/5FG/6FG.	74/115/185

PANASONIC

C1381i 14" Super VGA, 1024x768, .28, Int.	325
C1395 14" 1024x768, .28, NI.	445
C1991 20" 1024x768, .31, NI.	1495

POWER II

3E 14" Super VGA, 1024x768, .28, Int	285
AOC 336 14"Multisync, 1024x768, .28, NI.	335

SAMSUNG

MA2565 12" mono amber	75
MZ4571 14" mono paperwhite	115
ML4571 14" VGA mono 640x480.	125
CVM4967 14" 1024x768, .28	305
CSD5577 15" Flat, 1024x768, .28, NI	515
CSA 7571 17", 1024x768, .31, NI.	799
CSF7487 17", 1280x1024, .26, NI	1025

SEIKO

CM1450 14", 1024x768, .25, NI	529
CM2050 20", 1024x768, .31, NI	1545

SIIG

9" Mono paper white	115

SONY

1304S 14", 1024x768, .25, NI	575
1604S 17", 1024x768, .25, NI	1055
1791 17", 1024x768, .25, NI, (1604S oem).	995
1936 20", 1280x1024, .30 NI.	2399

14 MOTHERBOARDS

286-16	$105
386-40 64K cache w/o CPU(w/ CPU)	129(219)
upgrade tp 256K cache	50
486-33 w/ 64K w/o CPU(w/ CPU)	155(535)

AMI

Mark V 386-33 w/ 64K/256K cache.	480/595
Super Voyager 486-33 64K/256K	875/995
Super Voyager 486-50 64K/256K	1285/1395
Enterprise II 486-33/50 EISA w/ 128K	1295/1595
EZ-Flex 486DX-33/50 CPU card.	955/1550
AMI Diag	call

DTK

386SX-25	195
486-33 64K cache (Novell certified)	695

MICRONICS

386SX-20 Phoenix BIOS (32MB max)	215
386SX-25	235
386-33 64K cache Gemini (32MB max).	415
486SX-20	299
486-33 256K cache ISA	775
486-33 256K cache EISA E2	1125
486-50 256K cache ISA	1195
486-50 256K cache EISA.	1495

MICRONICS ACCESSORIES

4MB Piggy Back (up to 8MB)	399
16MB Memory Card	150
upgrade to 256K cache for old 486-33	80

NICE

486-33 64K/256K cache	595/635
486-50 256K cache	845
486-50 256K cache EISA	1095
upgrade to 256K cache	60

ORCHID

486-33 256K cache, AMI BIOS (32MB max).	745
486-50 256K cache ISA	995
upgrade to 256K cache for 486-33	80

SPRITE

SM486-33 128K cache	555
SM486-33 256K cache	585

VSLI

286-12	105

15 MOUSE

AERO

IMPC-60 3 button mouse	18
IMPC-40 trackball.	29

APPOINT

MousePen Pro for PC / Portable / Mac.	67
Thumbelina for PC / Portable / Mac	67

GENIUS

CLIX 3-button	19
GM-F302 mouse (3 button, PS/2 compat)	42

KENSINGTON

Expert mouse (serial trackball)	.99

LOGITECH

Cordless Mouse	79
Dexxa Serial Mouse	27
First Mouse Serial	37
FotoMan Digital Camera for DOS System	499
Mouseman Bus	64
Mouseman Serial PS/2 combo/(5 packs)	65/275
Mouseman Serial w/ WIN 3.1	115
Scanman 32	147
Scanman 32 with OCR software.	189
Scanman 256	249
Scanman 256 with OCR software.	299
Trackman Bus	69
Trackman Portable	99
Trackman Serial	59
Trackman Combo	69

MICROSOFT

Ball Point Mouse (portable)	119
Bus Mouse 400PPI.	85
Bus Mouse (400PPI) w/ Windows 3.1	149
Serial Mouse 200PPI	69
Serial Mouse 400PPI	85
Serial Mouse (400PPI) w/ Windows 3.1	149

MOUSE SYSTEMS

Omni Mouse (2 button)	29
PC Mouse III Serial (optical)	69
PC Mouse III Bus w/ Power Panel (optical).	89
PC Trackball II	55
The White Mouse w/ Power Panel.	56

16 NETWORK

3COM

3C503 8 bit coax ethernet.	175
5 packs (5 boards 1 manual)	799
3C507 16 bit coax ethernet / 5 packs	279/1250
3C503-TP 8 bit TP ethernet / 5 packs	235/1050
3C507-TP 16 bit TP ethernet / 5 packs	299/1450
3C523B Etherlink/MC for PS/2 / 5 packs	289/1210
3C523B-TP TP for PS/2 / 5 packs	319/1435

ARTISOFT (Lantastic)

AE-2 Ethernet starter kit,10Mbps v4.1/win	459/469
AE-3 Ethernet starter kit,10Mbps v4.1/win	535/545
10BaseT starter kit v4.1	595
2Mbps starter kit v4.1.	355
Z (2 stations) v4.1	89
AI software (individual node) v4.1	69
Ethernet Software Kit (NOS) v4.1	79
AE-2 Ethernet adapter	199
AE-2 MCA Ethernet adapter	275
AE-3 Ethernet adapter	235
AE-2/T 16bit 10Base-T adapter	210
AE-1/T 8bit 10Base-T adapter	135
2Mbps adapter.	145
64K RAM upgrade for AE-2, AE-3 adapter	45
Articom (LAN modem sharing software)	269
Lantastic for Windows Network Utilities.	165
Central Station Connectivity Processor	405
Lantastic Print Server Station Ware.	69
Netware Print Server Station Ware	69
Peer-Hub 10Base-T concentrator	270
Peer-Hub AUI interface kit.	270
Network Eye (Remote Control Access Program)	129
Remote Boot ROM for AE-2, AE-3 adapter.	45
Sounding Board adapter kit	72

CASTELLE

FaxPress (Network Fax Server) Fax from within DOS or Win application, supports PCL,Postscript emultion, supports Novell, MS LAN, IBM LAN (different model)	
Novell 1 line ethernet coax	2595
Novell 2 lines Token Ring 16/4Mbps	3225
JetPress (Network Print Server) for HP II,IID,III,IIID, supports thin ethernet and 10BaseT, supports up to 32 queues on up to 8 file servers	429
LANPress (Network Print Server) connects up to 4 printers, supports up to 32 queues on up to 8 file servers	
Ethernet Thick/Thin coax (1P 3S)	489
Ethernet Thick/Thin coax (2P 2S)	625
Ethernet 10BaseT (1P 3S)	489
Ethernet 10BaseT (2S 2P)	639

CC:MAIL

cc:Mail DOS platform / Windows platform	129/339
cc:Mail 8 user pack / 25 user pack v3.2	129/399

COMPULAN

8 bit E100 coax	95
16 bit E200 coax	105
16 bit E300 coax dual-port shared memory	129
16 bit E210 combo,BUS mastering,Surface Mount	159
16 bit E650 combo, Surface Mount	149
32 bit E950 combo ethernet	229
32 bit E900 coax	249
16 bit E200/2 coax for MCA	145
16 bit E800/2 coax dual-port shared memory MCA	155
8 bit ET500 TP ethernet	105
16 bit ET600 TP ethernet	125
Boot Prom	25
Pocket adapter for arcnet.	135
Pocket adapter for coax / TP ethernet	185
8 port concentrator (10BaseT ethernet).	349
12 port concentrator (10BaseT ethernet).	520
Token ring T1000 16/4Mbps	349
Token ring T1000/2 16/4 Mbps for MCA	379
8-port MAU Type 1 cable, DB9 shielded TP	329
8-port MAU Type 3 cable, RJ45 unshielded TP	279

FARALLON

PN380 PhoneNet card PC for LocalTalk	203
PT100 PhoneNet talk for PC	145

GATEWAY COMMUNICATION

G/Ethernet 16 coax / 16 TP	159/179

GENIUS LAN

Ethernet 8-bit NE1000 Coax compatible	99
Ethernet 16-bit NE2000 Coax compatible	109
Ethernet 16-bit NE2000 10BaseT compatible	129
Ethernet 12-port TP+2AUI+2BNC concentrator	529
Ethernet "LAN Ready" for Lantastic, 16 bit coax	375
Ehternet "LAN Ready" for Lantastic, 16 bit 10BT	409
Ethernet "LAN Ready" for Netware Lite, 16bit coax	379
Ethernet "LAN Ready" for Netware Lite, 16bit 10BT	415
Ethernet Thin coaxial pocket adapter	185
Ethernet 10BaseT pocket adapter	185
Arcnet 16 bit "4-in-1" card(coax, TP, Star, Bus)	75
Arcnet 4-port Active Hub, int, coax	54
Arcnet 8-port Active Hub ext, coax or 10BaseT	129
Token Ring card 16 bit, 4/16 Mpbs (IBM chipset)	489
Token Ring card MCA, 16-bit, 16Mpbs (TI chipset)	399
8-port MAU w/ Type 1 connection	299
8-port MAU w/ Type 3 connection	349

SEE MORE ON THE NEXT PAGE

INTEL

EtherExpress 16.	135
EtherExpress 16TP	153
EtherExpress 32 EISA	553
EtherExpress ISA Hub Adapter	585
EtherExpress EISA Hub Adapter	685
NetPort II Thin/Thick Ethernet	519
NetPort II 10BaseT.	529
NetPort II Token Ring	669
NetSatisfaxtion	635
TokenExpress 16/4 for ISA / EISA	535/685
TokenExpress 16/4 for MCA.	535

NOVELL

8 bit NE1000 coax ethernet	145/175
16 bit NE2000 coax ethernet.	165
16 bit NE2000TP TP ethernet	185
32 bit NE3200 coax	759
NE10T-Hub 4 Port Concentrator	235
NE10T-Hub 8 Port Concentrator	349
Netware Lite	69
Netware 2.2	
5 users / 10 users	489/1089
50 users / 100 isers.	1925/2955
Netware 3.11	
5 users / 10 users	619/1369
20 users / 50 users	1925/2799
100 users / 250 users	3859/6885

SMC (WESTERN DIGITAL)

8 bit coax Ethercard Plus Elite	129
6 pack	715
16 bit coax Ethernet Plus Elite / 6 pack	155/895
16 bit TP Ethercard Plus Elite 16T	169
16 bit TP Ethercard Plus Elite 6 pack.	975
Ethercard Elite 16 combo (coax/10BaseT).	225
Ethercard Plus/A for PS/2	219
Netware Boot ROM	34
8 Port Concentrator (10 Base T Ethernet)	339

XIRCOM

PE2-10B2 Pocket Adapter Ethernet coax	325
PE2-10BT Pocket Adapter Ethernet 10BaseT	357
PT2-16B3 Pocket Adapter Token Ring 16/4Mbps	615

CABLES & ACCESSORIES

10 BASE-T Twisted pair cable, 1000', PVC	95
10 BASE-T Twisted pair cable, 1000'.	165
RG58, 1000'	109
Belden 8259, RG58, 1000'	165

17 POWER SUPPLIES

AMERICAN POWER CONVERSION (UPS)

APC-400 Smart-UPS (286, 386 WS)	309
APC-600 Smart-UPS (386, 486 FS).	399
APC-900 Smart-UPS (386, 486, FS and WS)	639
APC-1250 Smart-UPS (multiple FS and WS)	799
APC-450 Back-UPS 286, ps/2, 386	235
APC-600 Back-UPS 286, 386 FS.	299
APC-800 Back-UPS 800RT, 2-4ms, 15 mins.	565
APC-750 On-Line UPS (286, 386, 486 FS)	1365
APC-1500 On-Line UPS (multiple servers)	2499
APC PowerChute for Novell.	79
APC PowerChute for UNIX	79
Power Doctor (for DOS) I/F kit for Smart-UPS.	79

PC POWER COOLING

Standard 220 desktop/full tower.	95
Silencer 270 desktop/slim/full tower.	175
Turbo-Cool 300	
slim/baby & mid tower.	165
AT desktop/full tower	185
Turbo-Cool 450 desktop/full tower	345
InnerSource 2210 UPS int, 95-132 VAC, 220W DC, 100W AC, equivalent to 550 VA external UPS	369
Novell Netware Interface for InnerSource 2210 UPS	55

OTHERS

150W / 200W (XT) (UL).	40/48
200W / 230W for Baby AT & Mid Tower	45/55
230W for AT	48
230W for FullTower.	59
300W for Full Tower	89
550W (UPS)	279
1200W (UPS)	999

18 PRINTERS

CANON

BJ-10ex (Bubble jet)360 dpi,37K buf.	299
Auto Sheet Feeder	79
Bag / Battery	39/45
Print Head Cartridge	22

CITIZEN

GSX 200 (9 pin)	165

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GSX 130	205
GSX 140 Plus (24 pin)	269
Color Option for above printers	45
Auto Sheet Feeder for GSX 140	109
GSX 145 (24 pin, 132 column)	355
Color option for GSX 145.	65
GSX 240 Scalable Fonts & quiet.	329
PN48 notebook printer,1ppm,2lb,battery,case.	325

FUJITSU

DL1100 mono	275

HEWLETT PACKARD (LaserJet w/ toner)

Desk Jet 500	395
Desk Jet 500C	599
Jet Ram Memory 256K for 500 & 500C	69
Laser Jet IIP+	775
Laser Jet III	1425
Laser Jet IIIP / IIID / IIISi	995/2395/3495
Accessories:	
Envelope Tray(15 envelopes) for III	69
Envelope Tray for IIP,IIIP	79
Envelope Feeder for IIID	295
HP Postscript Cart. for IIP, IIP+, III, IIID	395
Legal Tray for HP II, III	69
Lower Cassette (w/ letter tray) IIP,IIIP	149
Toner for HP II, III	79
Toner for HP IIP, IIP+, IIIP	66
Jet Ram Memory for HP II 2MB / 4MB	135/205
Jet Ram Memory for HP IIP, IIP+,III,IIIP,IIID 1MB / 2MB	75/115
3MB / 4MB	155/195

MICROTEK

TrueLaser 6ppm,2MB,35 fonts	1355

PACIFIC DATA PRODUCTS

ProTracer inkjet printer/plotter, A- to C-size output, 360dpi, i960RISC processor, 512K, 45dBA	1075
5 MB memory upgrade	439
8 MB memory upgrade	669
postscript emulation card	375
sheet feeder I	115
sheet feeder II	105
ink cartridges	19.50

PANASONIC

1180i / 1123	158/199
1124i / 1624	285/349
Auto sheet feeder for 1124 only KX-P36	120
2123 24 pin, 43.5dBA, color capability	239
2124i 24 pin, 43.5dBA, color capability	319
2180 9 pin, 45dBA, color capability	169
Color upgrade kit KX-PCK11	49
Single bin cut sheet feeder KX-PT10	95
2624 (24 pin, quiet printer 46.5 dBA)	375
32K Buffer dot matrix printers KX-P43	65
Serial interface card KX-P19	75
4410 Laser, 512K 5ppm	619
1MB mother Ram board KX-P444	115
1MB daughter Ram board KX-P445	99
LaserBoard 1MB (3rd party)	105
Corona KX-PCR3	45
Developer KX-PDP4	105
Drum KX-PDM4	89
Extra Cassette KX-PKC2	45
Fonts Card KX-P47x	95
Fuser Unit KX-PFS5	105
Optional Second Cassette KX-P495	135
Toner KX-P453	35
4420 Accessories	
RamBoard 1MB / 2MB / 4MB	99/139/219
Developer KX-PDP2	95
Drum KX-PDM2	99
Envelope Tray KX-P431	59
Fonts Card	95
Legal Tray KX-P425	45
Ozone Filter KX-PFT2	26
Toner KX-P451	39
4430 Laser, 1MB, 5ppm	885
4450 Accessories	
RamBoard 1MB	139
others same as 4450i	
4450i Laser, 11ppm	1099
RamBoard 1MB / 2MB / 4MB	99/139/219
Developer KX-PDP1	95
Drum KX-PDM1	145
Envelope Tray KX-P430	59
Fonts Card	95
Legal Tray KX-P420	45
Ozone Filter KX-PFT1	29
Toner KX-P450	35
4455 (Postscript) 11ppm	1715
RamBoard 2 MB	159
others same as 4450i	

QMS (Adobe Postscript)

QMS-PS 410 4ppm, 2MB, 45 Fonts	1375
1MB / 2MB / 4MB Memory	125/165/245
Envelope / Legal / Letter Tray	69/69/69
Lower Cassette with Letter Tray	160
Toner	95

SEIKO

Smart Label Printer Plus (IBM/APPLE)	159
Box of Label (2 rolls per box)	10.95

TEXAS INSTRUMENTS

MicroLaser Plus PS17 / PS35 9ppm	1155/1455
Apple Talk Kit	99
RamBoard 1MB	69

LASER PRINTER ACC.

COMPUTER PERIPHERALS

Jet Page (for HP II)	295

GENESIS

JetTray 250E, holds 250 #10 envelopes	469

IQ ENGINEERING

Super Cartridge 1 for all HP Laser&True HP Compatibles	139
Super Cart. 2 for HP II, IID, IIP, IIP+, III, IIID	249
Super Cartridge 2 & 2LC	269
Super Cart. 3 Pro+ for HP III,IIID,IIIP,IIISi	249
Super Cart. 3 Creative Collection for III family	249
Desk Jet 500 Professional	99
Desk Jet Plus Professional	99

LASER MASTER

WinJet 800 800dpi, Postscript adapter for HP II,IID,III,IIID	699

PACIFIC DATA

25 in One! III (for Deskjet 500)	99
25 in One! III (for HP II, IID, IIP, IIP+, III, Microtek)	245
Complete Font Library for HP III, IIID, IIIP	255
Font Bank (NEW) (for all HP Laserjet) stores soft fonts, 0.75MB / 1.5MB	205/269
Headlines Cartridge for HP II, IID, IIP	185
MacPage Driver and Connection Kit for Mac & HP II, IID, IIP, IIP+, III, IIIP	95
Paicfic Connect (for HP II, IID, IIP, IIP+, III, IIID, IIIP) connect up to 5 PC and/or Mac to a printer 256K/1.25MB	265/299
Pacific Page & 2MB (Postscript for HP II)	389
Pacific Page II / XL(postcript for HP II)	719
Pacific Page P.E. (for HP IID,IIP,IIP+,III,IIID, IIIP)	269
Pacific Page P.E. & 2MB	405
Pacific Talk	179
Pacific Page XL (for HP IIP, IIP+, III, IIID, IIIP) Postscript emulation cartridge comes with 2MB & accelerator board 8 times faster than other cartridges	649
Pacific Print for network & HP II, IID, IIP, IIP+, III, IIID, IIIP	99
Plotter in a Cartridge (for HP II)	225
Plotter in a Cartridge P.E. for HP IID, IIP, IIP+, III, IIID, IIIP	225
1-2-4 Plus (for HP II, IID) 1MB/2MB/4MB	115/155/235
Pacific 4 Memory (for HP IIP, IIP+, III, IIID, IIIP) 1MB/2MB/4MB	95/135/215
Pacific Si Memory (for HP IIISi) 1MB / 4MB	85/215
LP Memory (for IBM 4029E) 1MB/2MB/3.5MB	129/179/249
Pacific T Memory (for Epson 6000) 2MB / 4MB	209/299

PELICAN All type ribbons	visit us

19 SCANNER

TAMARACK ArtiScan Flatbed Scanner 24 bit color, 256 gray levels, comes with Picture Publisher LE 3.0 and Recognita plus OCR or PhotoStyler Full 1.1 only, SCSI interface

TTI 6000C 600dpi	1195
TTI 8000C 800dpi	1495
Slide Scan Kit (transparency,slide,X-ray)	695
Hand scanners	see Logitech in section #17

20 TAPE BACKUP

COLORADO

DJ-10 (120MB) QIC-40 w/ cable	$189
DJ-20 (250MB) QIC-80 w/ cable	255
AB-11 External tape port	45
Cable (2 Floppies & tape back up)	9
FC-10 Controller	95
KE-09 Ext kit w/o controller	75
TC-15 controller w/ data compression	195
Unix/Xenix driver for DJ-10, 20	129
QFA-700 (700MB)	725
TC-02 adapter (required)	259

EVEREX

EV-811 8 bit adapter QIC-02 for XT,AT	105
EV-880 floppy tape adapter for AT	65

MICRO SOLUTIONS (External)

120MB / 250MB External (printer port)	365/425

MOUNTAIN NETWORK SOLUTIONS

FS1200 1.3GB,4mm,SCSI cont,int/ext	3595/3905
FS2100 2.2GB, 8mm, w/ SCSI cont, ext	4895
FS7250 150-250MB, QIC-02, w/ cont, ext	1435
FS7250 250MB, w/ SCSI cont, ext	1565

SUMMIT

SE120 120MB w/ Central Point Back up	195
SE250 250MB w/ Central Point Back up	265
SE305 350MB Backup	369
Accelerator board for SE120 & SE250	165

CASSETTES

3M

DC 1000 (mini)	14.50
DC 2000 (40MB)	16.50
DC 2080 (80MB)	18
DC 2120 (120MB)/Pre-formatted	19.95/25.95
DC 600A (60MB)	20.95
DC 6150 (150MB)	22.95
DC 6250 (250MB)	26.95
DC 6525 (525MB)	39.50

VERBATIM

DL 450 ECT	19.95
DL 600 ECT	22 95

21 VGA CARDS

All cards 1024x768 except as stated

CGA card	$29
MGP card (Monographic w/ Printer)	29
ET4000 Tseng Lab 1MB	109
Oak067 Super VGA 512K	55
Oak077 Super VGA 1MB	79
SVGA 256K	55

AMI

FastView EISA VGA Graphics w/ 1MB	549

ATI

VGA Stero 512K w/ speakers	269
Wonder XL OEM w/ 1MB	115
Wonder XL series w/ mouse, 1MB, Hi-color	169
Graphics Ultra Plus 1MB (VRAM) w/ mouse	375
Graphics Vantage Plus 1MB(DRAM) w/mouse	255

DIAMOND

SpeedStar 24X w/ 1MB 16 million colors	189
Speedstar 24 bits w/ 1MB 16 million colors	159
Stealth 1MB, VRAM, w/Sierra Hi-color	225

EVEREX

Viewpoint NI 256K/512K	129/149

GENOA

7900 Multimedia VGA 1MB, Hi-color, 16 million color, 24 bit	159
8860 1MB 1280x1024 Hi-color	239
M2100 VGA2TV	425

MYLEX

GLE911 EISA 1280x1024, 1MB	409
GXE020B 1280x1024, 4MB DRAM 2MB VRAM, TMS34020, Tiga/EISA	1039

NUMBER NINE (TI34020)

GXI Lite Level 21 1024x768 16 colors at 72 Hz	call
GXI Level 23 for CAD/Win 1280x1024 16 colors at 72Hz, 1MB VRAM 1MB DRAM	1209
GXI Level 24 for Windows 1280x1024 256 colors at 72Hz, 2MB VRAM	1279
GXI Level 25 for CAD/Win 1280x1024 256 colors at 72Hz, 2MB vram 1MB dram	1429
GXI Level 29, 24 bit 1280x1024 65536 colors at 72 Hz 4MB vram 1MB dram	1719

ORCHID

Fahrenheit 1280 1MB with Hi-color, 12x10	225
Fahrenheit 1280-D 1MB with Hi-color	225
ProDesigner IIs 1MB with Hi-color	139
ProDesigner IIs-D 1MB with Hi-color	189
ProDesigner IIs, 1MB, Hi-color for MCA	379

UNITED SOLUTIONS

Utra 1MB 1280x1024 Hi-color	139

III SOFTWARE

ADOBE

Illustrator 4.0 for Windows	359
Plus Pack for Mac / Windows	119
Postscript Cartridge for HP II	239
Type Cartridge 1: Display Faces	99
Type Cartridge 2: Best Sellers	99
Streamline for Windows	125
Type Align for Windows	63
Type Manager for Windows	59
Type Set 1/2/3 for Windows	65/65/129
Type Set: Invitations & Awards	87
Type Set: Letter, Memos & Faxes	87
Type Set: Overheads & Slides	87
Type Set: Spreadsheets & Graphs	87

AUTODESK

AutoSketch for windows	182
Generic CADD 6.0	299
Multimedia Explorer	120

BORLAND

C++ Professional 3.1 for Windows	325
C++ 3.1 for Win & Application Frameworks	485
dBase IV 1.5	469
Paradox 3.5	485
Quattro Pro 3.0	149
Quattro Pro 4.0/upgrade	299/85
Buddle of Quattro Pro3.0 & upgrade	219
Screenery (Windows wallpaper, screen saver)	25
Turbo C++ for Dos / Windows	68/105
Turbo Debugger & Tools 2.0	99
Turbo Pascal for Windows	119

IBM

OS/2 2.0	145
OS/2 2.0 upgrade	99

MICROSOFT

DOS 3.3 / 4.01	59/19
DOS 4.01 w/ Windows 3.0	64
DOS 5.0	55/65
Entertainment Pack for Windows I / II / III	28
Excel 4.0 for Windows	299
Excel 4.0 for Win Upgrade	97
Excel 4.0 for Win Competitive Upgrade	125
Flight Simulator	39
Joystick Warrior 5	14.50
Maxx II Control Yoke for PC	49
Maxx Pedals for PC	39
Lan Manager v.2.1, 1 - 10 user	1299
every additional 10 users	659
unlimited pack(must purchase 1-10 usr)	3599
Microsoft C/C++ 7.0 w/ SDK	315
Microsoft C/C++ 7.0 upgrade	135
Money for Windows	49
Multimedia Development Kit	299
Office for Win(Excel, Word, Power Point, Mail)	469
PC Mail Server for DOS & Windows	435
Power Point for Windows/upgrade	299/97
Project 4.0 for Windows/upgrade	419/145
Publisher for Windows	125
Quick Basic Compiler 4.5	62
Quick C for DOS / Windows	69/125
Quick C Compiler w/ Quick Assembler	125
Software Development Kit (SDK)	305
Visual Basic for Windows	125
Visual Basic Pro Tool Kit (Special)	99
Windows 3.1	65
Windows 3.1 Device Driver Development Kit	315
Word for DOS / Windows	207/299
Word for Windows upgrade to v2.0	125
Works for DOS / Windows	95/125

SANTA CRUZ OPERATIONS (SCO)

SCO C++	915
SCO ODT Personal System 1.1	1170
SCO ODT Personal System 1.1.1 (tape)	1086
SCO Multiview 386 1.6.1	299
SCO XENIX-NET 386 single server v1.3.0	685
UNIX 386 Dev Sys 3.2.2 C-Compiler & Dev Tools	995
UNIX 386 GT Oper Sys 3.2.2 Multiuser	995
XENIX 386 Dev Sys 2.3.1 C-Compiler& Dev Tools	610
XENIX 386 GT Oper Sys 2.3.4	585

VENTURA SOFTWARE

Educational administrative, student, faculty and educational institutions special

Ventura Publisher 3.0 Gold Series DOS / Windows / Mac	199

WORDPERFECT

DataPerfect / DrawPerfect	265/265
Figure Library (Bus/Edu/Fig/Holiday/Leisure)	79 each
LetterPerfect / PlanPerfect	115/235
WordPerfect 5.1 for DOS / Windows	245/255
WordPerfect Trade up (from DOS to Win)	75
WordPerfect Executive/Office/Works	145/95/169

OTHERS

3-D Charts to Go!	52
After Dark for Windows (screen saver)	29
Aldus Freehand 3.0 for Windows	379
PageMaker 4.0 for Windows	469.
Persuasion 2.1 for Windows	325
Photostyler 1.1 for Windows	505
Automap (road atlas)	55
Carbon Copy Plus 6.0	119
Carbon Copy for Windows	112
Central Point Anti-virus / Backup 6.0	53/50
PC Tools 7.1	89
PC Tools 7.1 w/ Anti-virus	99
Check-It	85
Claris Hollywood for Windows	312
Clipper 5.01	479
Corel Draw 3.0/upgrade	365/147
Correct Grammer for DOS/Windows	49/59
Definition Plus! (American Heritage Dict.)	59
Direct Access 5.1	63
FaceLift for WordPerfect	61
Fastback Plus 3.04/for Win	117/117
Fax Grabbler w/ Norton Desktop for Win	99
Fax Pak :WinFax Pro,Fax Grabbler,Norton Desktop	145
Fox Pro 2.0	459
Geoworks Pro	122
Grammatik V for DOS / Windows	57
hDC Windows Express	55
Hardvard Graphics 3.0 for Windows/DOS	375/399
Home Bundle (HomeDesign and Landscape)	24
Intermission for Win (screen saver)	29
LapLink Pro v4	99
Lotus 1-2-3 for Windows	389
1-2-3 Rel 2.3 for DOS	315
1-2-3 Rel 3.1+ for DOS	379
Ami Pro for Windows	279
MacPrint	85
MicroGrafx Designer 3.1	355
More Fonts / Display Faces	77/77
Norton Anti-Virus 2.0	85
Norton Backup 1.2	85
Norton Desktop 2.0 for Windows	102
Norton Utilities 6.01	112
PC Anywhere 4.5 Remote and Host	115
PFS: First Choice (w/ Prodigy start-up kit)	7
Pacioli 2000	24
Pro-scan (virus identifier & remover)	4
Procomm Plus 2.1/win	69/8
Qualitas 386Max v.6.0	cal
Quarterdeck	
DesqView 286	7
DesqView 386 v2.4	12
Qemm 386 v6.0	6
Manifest / Qram	41/4
Quicken for DOS/ Mac/ Windows	49/49/3
QuickBook	8
QuickBook & QuickPay	11
QuickPay (payroll)	3
Speedstor 6.5	6
Speedstor Plus w/ SCSI controller	7
SpinRite II	6
Stacker Data Compression 2.0	8
Stacker AT/16	17
Superstor	7
The Far Side (computer calendar)	4
Time Slip v.5.0	18
Ventura Publisher Gold upgrade for win	46
Ventura Publisher Gold 4.0 for win	48
Winfax Pro	7
XTree Gold 2.5	
Educational / games	on sale no

USER GROUP NETWORK

BULLETIN BOARDS

209

BerthaBoard. (209)823-9858. 1200–14,400 V.32. three lines, three gigs, 50,000 files, lrg. msg. base. [Exp. #100.]

408

A32 Macintosh User Group BBS. (408)263-0299. 24 hrs., 2400. Second sight, members only. Voice: (408)263-0398. [Exp. #100.]

Amateur Action BBS. (408)263-3393. 8-N-1, 1200/2400/9600. 100% Adult Amateur GIF files, eight lines. [Exp. #99.]

Amiga (The Dungeon) BBS. (408)384-6370. 24 hrs., 1200/2400. Games, files, info on Amiga viruses, some IBM files. Sysop: Garnett Sanders. [Exp. #100.]

Apple Byte GS. (408)578-3201. 24 hrs., 1200/2400/9600/14,400. Apple II Support BBS, member FVNet, running Metal BBS software, 685MB. Free. Sysop: Jim Buchanan. [Exp. #101.]

Atlantis BBS. (408)495-2729. 8-N-1, 1200/2400. Catering to the bisexual and homosexual communities of Santa Cruz. Sysop: Raistlin Majere. [Exp. #100.]

Bare Bones BBS. (408)272-2173. 8-N-1, 24 hrs., 9600. 2 lines, Mac file transfers. Free, instant validation. Sysop: L'il John. [Exp. #101.]

Bay Area Atari User Group (BAAUG) BBS. (408)986-0215. 8-N-1, 24 hrs., 300/1200/2400. [Exp. #99.]

The Beggar's Tomb. (408)395-1425. GIFs, stories, and animation for all adult orientations. Sysop: The Grim Reaper. [Exp. #99.]

Berryessa Central. (408)946-5642. 8-N-1, 1200/2400/9600/14,400. All computers, interesting message sections. Sysop: Mark Shapiro. [Exp. #100.]

Blue Smoke BBS. (408)256-4660. 24 hrs., 300/1200/2400. Fidonet, matchmaking adult SIGs and GIFs, games. Free access. Sysop: Masque. [Exp. #99.]

Buferd's Place. (408)226-7127. 2400. Online games, fun, email, one of the fastest growing BBSes around. Kids welcome. Free. [Exp. #100.]

Burn This Flag. (408)363-9766. 9600. Topics from Abortion to Zionism. NIRVANAnet. No fee. [Exp. #99.]

The Chamber II BBS. (408)336-3404. 8-N-1, 2400. IBM/MS-DOS shareware, specializing in telecomm & BBS software and utilities. Two lines, free access. Sysop: Drew Roberts. [Exp. #99.]

Code Room. (408)266-3818. 8-N-1. A Programmer's BBS. Tons of C files. Win & OS/2 prog. conf. FidoNet 1:143/326. Sysop: Ramin Akhbari. [Exp. #101.]

Computers For Christ Headquarters. (408)363-8959. 24 hrs., 300/1200/2400/9600/14,400. Dedicated to Christian topics and examination of other religious groups. Over 80MB of text files on religious groups of the world. [Exp. #101.]

Amateur Action BBS

Amateur Adult GIF Files!
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FREE Amateur Video!!

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8 Lines
US Robotics Dual Standard
Modem 1200/2400/9600
V.32/14400 HST

Cool Ads. (408)378-3322 (1200/2400), 378-3355 (9600). Local info & ads. [Exp. #99.]

Cruz'in BBS. (408)464-8924. 300/1200. Commodore 64/128. Online games, file transfers, message base, and user group. Sysop: Michael Baldwin. [Exp. #100.]

Cruzio. (408)423-9995. 8-N-1, 1200/2400/9600/19,200. Santa Cruz, email, USENET newsgroups, calendar, agency & gov't directory listings. Sysop: Chris Neklason & Peggy Dolgenos. [Exp. #99.]

The Cypress Express BBS. (408)423-3812. 8-N-1, 1200/2400. Various message areas and assorted topics of interest for everyone. FidoNet 1:143/512. Co-Sysops: Jen Campbell and Lincoln Quale. [Exp. #99.]

The Dark Side. (408)245-SPAM. 24 hrs. Free access to Usenet and UUCP mail. Since 1985. Internet: darkside.com. [Exp. #100.]

DC-To-Light. (408)262-5150. 8-N-1, 24 hrs., 300/1200/2400/9600. MS-DOS, CAD, UNIX, WIN, LAN & HAM: Conferences and email. Sysop: Fred Townsend. [Exp. #100.]

DoveNet. (408)956-1950. 8-N-1, 300/1200/2400. 16 lines of files and fun. One week no limits access to verified new users who senu email to sysop and mention MicroTimes. Sysop: Char-lez Braden. [Exp. #99.]

Eat My Shorts. (408)737-1885. 1200/2400/9600. Msgs, files, games, adult, etc. Many help screens for newcomers. FidoNet. [Exp. #101.]

The Electric Pages. (408)253-4280. 300/1200/2400. Commercial and private advertising. Select by category or key words. Voice: (408)253-1709. Sysop: Contemporary Communications, Inc. [Exp. #99.]

Fun Seekers. (408)379-0958 (300–2400), (408)379-9680 (300–38,400). 8-N-1. IBM utils, games, adult, bus. ed., fitness, and more. Designed for the whole family. [Exp. #99.]

Garlique Graphics. (408)847-0665. 24 hrs., 2400/9600. When only the best will do. [Exp. #100.]

Gray Matter BBS. (408)749-0740. 8-N-1, 2400. Graphics, discussion, DOS/DESQview shareware, entertainment. GIFs and games encouraged. Adults only. Sysop: Squeeky Wheel. [Exp. #100.]

HAM BBS. (408)267-6396. 300/1200/2400. Ham radio, scanner, SWL, frequencies. Sysop: Travis Wise [Exp. #100.]

The Haunted Castle BBS. (408)226-1052. 2400/9600. Two nodes, 600MB online. [Exp. #100.]

HeartBeat Earth. (408)257-2306. 8-N-1, 300/1200/2400. New interactive pub! Find the vital signs of life in the Silicon Junction, animal kingdom & third wave echocenter. Free access. Sysop: Mark Johnson. [Exp. #99.]

HoloNet Internet BBS. (408)986-1151. 8-N-1, 24 hrs., 1200–14,400. See 510 Area Code listing. [Exp. #99.]

Infoserve Connections. (408)243-2102. 8-N-1, 24 hrs., 2400. UUCP/Usenet/email for DOS, Mac, and 386/UNIX. Sysop: B. Oesterreich. [Exp. #99.]

The I/O Temple. (408)427-3453. 8-N-1, 1200–14,400. Msg bases, online games, and more. FidoNet 1:216/513. Sysop: Armand. [Exp. #101.]

The LaserBoard. (408)268-4863 (2400), 268-6323 (14,400). 24 hrs., Lots of messages, PCRELAY & TECHNET. Free. Sysop: Shawn Higgin. [Exp. #99.]

Lynn-Western Newswires. (408)778-5994 & 778-9656. 8-N-1, 24 hrs., 1200/2400. FidoNet 1:143/304. Professional information on technology, management, and worldwide investment news. Stock Market data online. [Exp. #100.]

Mail Stop. (408)257-1919. 8-N-1, 24 hrs., 300/1200/2400. Free, private email and SIG system. Internet mailboxes avail. [Exp. #101.]

Mongoose BBS. (408)733-3034. 24 hrs., 1200–38,400. We're back, better than ever! Over 2GB of space and files. Free access. Sysop: Robert Yag. [Exp. #101.]

Monterey Gaming Systems. (408)655-5555. 300–14,400. 8 lines, conferences, email, messages, custom games. Free. [Exp. #99.]

Moose Is Loose BBS. (408)773-9573. 1200/2400/9600. The best message base under Sunnyvale's fruit can. SASE reg. required for file access. Sysop: John Giever. [Exp. #99.]

Mountain Retreat. (408)335-4595. 1200–14,400. 660MB, FidoNet member, specialty Turbo Pascal. Sysop: John Jamieson. [Exp. #101.]

The Mud Hole BBS. (408)739-8297. Messages, great doors, RC chat, fishing, and files. Free. [Exp. #100.]

Nitelog BBS. (408)655-1096. 24 hrs., 300–16,800. Files, adult, eleven lines, 4.9GB.

Continued

BAY AREA BBSes

By Kathleen Creighton

New, Improved Prodigy

Wait! Before you throw this publication down and stomp out in disgust, you should realize that Prodigy's made some changes this year—four years after it was ballyhooed in the Bay Area, and two years after its nationwide roll-out. CEO Ted Papes, who by all accounts never even used email, has been replaced by Ross Glatzer, who seems to understand that once people sign up with Prodigy they need a reason to stay there.

Among the online crowd, just the word "Prodigy" unleashes a torrent of emotion. People love it or hate it, but few are neutral about it. The first Bay Area users (July 1988) saw graphics, lots of ads, a little bit of headline news, weather, and not much else, in functionality perhaps a step above the video kiosks in place at the Embarcadero Center. And since 386 PCs and 2400 baud modems were considered premium equipment at the time, running Prodigy on the 1988 PC "standard" XT platform with a 1200 baud modem was unbelievably slow. Well, now more people are using 386s and faster modems, and Prodigy supports Mac and Apple users as well, and guess what? It's still slow.

As for the ads—well, there are still ads; but not as many advertisers, and the opening screen doesn't seem to be as shrill a push toward "buy! buy!" as it was in the past. In addition, the user now has the option of selecting among several opening screens ("highlights" screen) to see on login, so it's possible to log on to Prodigy without seeing the opening pitch at all.

Methods of advertising are getting more interesting and useful. Some Prodigy/local BBS users will remember the freeware utility package for Prodigy developed and supported by Prodigy user Pete Royston. Pete Royston is now Royston Development and the (enhanced) utilities are available for sale. There's a company that accepts job listings for viewing, and one which supports classified ads (including a "personals" section). These are both great ideas (and both charge a fee to the advertiser), but both could use a little work so that users are shown only what they have not already read.

Those slow graphic screens mimicking animation have provided Prodigy with an amusing gimmick—online greeting cards available to send to other users. The more expensive virtual cards include "music" (such as "Anniversary Waltz"), and there are "postcards" available for the budget-conscious (the prices range from 50 cents to $3.25). All have areas in which to insert a personal message.

Games have been centralized, and the Game Center is now hosted by Computer Gaming World. A for-fee game, Prodigy Network Golf Tour started recently, using the Jack Nicklaus Signature Edition software (which the user must have in order to participate). Fantasy baseball and fantasy football are also available for a fee.

As Prodigy was originally conceived, BBS areas for user-to-user communication had a back seat to shopping services, but they are now recognized as Prodigy's most-used feature. Since posting to the BBSs is not real-time (messages are submitted to be posted internally by Prodigy), Prodigy's philosophy of keeping people on the designated topic and within a very narrow range of behavior, and its heavy and often capricious censorship of BBS messages, were a source of gigabytes' worth of complaints, charges and counter-charges, between users and Prodigy staff.

But things have changed under CEO Glatzer, who seems genuinely interested in "liberalizing" the boards; and although capricious censorship, most often inflicted by an English-only text scanner, still occurs, the howls have died down. Any BBS topic area probably contains more than is obvious.

Continued

BBSes

Sysop: Karl Van Lear. [Exp. #101.]

Online Apartment Rentals. (408)245-6915. 1200. Free service for locating an apartment. [Exp. #100.]

Online Consultant. (408)223-9886. 8-N-1, 1200/2400. PC help for individuals and small business. [Exp. #99.]

Pacific Exchange BBS. (408)946-8561. Twelve lines and over 40,000 IBM files. Since 1986. [Exp. #101.]

Pixel USA BBS. (408)929-6981. 9600. Four lines, support for Pixel USA Computer. [Exp. #101.]

Phosphor BBS. (408)259-0369. 300/1200/2400. Multiplayer games, files, 14 lines of chat, MNP5/V.42bis. [Exp. #99.]

Pro-Line BBS. (408)226-3880. Also (510)790-2923. 24 hrs., Multiline, chat, file library, jobs online, and more. [Exp. #99.]

Ring Of Fire BBS. (408)739-8753 (2400bps), 739-8371 (9600bps). BBS for United Sysop's Association and Silicon Valley Novell Users Group. Since 1983. Sysop: Bill Strouse. [Exp. #101.]

The Rising Storm. (408)739-8693. 8-N-1, 9600. Emergency prep., firearms, current events, earthquake maps. Sysop: Kirk DeHaan. [Exp. #100.]

The Savage Garden. (408)423-3812. 8-N-1, 1200/2400/9600. Specializing in alternative realities and subject matter concerning the unknown and unusual. [Exp. #100.]

Second Source Parts, Inc. (408)248-3870. 8-N-1, 24 hrs., 300/1200/2400. Medical equipment, new & used parts, consumables, info & more. [Exp. #100.]

Shareware Connection BBS. (408)261-3278, 261-2821. 1GB+ adult files, 1GB+ IBM files. PC-SIG/PC-PIX CD-ROM, shareware magazine. [Exp. #101.]

The Shrine BBS. (408)747-0778. Magick, religions, and sex. Sexual areas by request. All lifestyles welcome. Sysop: Tom Zoch. [Exp. #101.]

ShrinkTank BBS. (408)257-8131. 8-N-1, 300/1200/2400 & 9600 for SuperModem users. Mental Health, Psychology, Men's Issues, Metrolink conferences. All users welcome! Sysop: Rob Bischoff, Ph.D. [Exp. #99.]

The Silicon Connection. (408)492-9700. 24 hrs., 300/1200/2400. Electronic PenPal Network, Sixteen lines. [Exp. #100.]

Silicone Valey BBS. (408)946-3792. 8-N-1, 24 hrs., 1200/2400. Mac/IBM graphics, games, utilities. G–XXX. No fees. Sysop: Alan Ginsburg. [Exp. #101.]

Skies The Limit BBS. (408)254-1192. 1200/2400/9600. Files for everyone. Membership and non-membership areas. [Exp. #100.]

Spectra! BBS. (408)443-8740. 24 hrs., 1200/2400/9600. Free D1's, adult files/msgs, doors, matchmaking, and more. [Exp. #99.]

SUBBS. (408)765-1695. 300–9600 V.32. Free, public, upload, download, Intel sponsored. Sysop: Mark Elston. [Exp. #100.]

Success BBS. (408)267-8325. 8-N-1, 1200/2400. S. Bay Entrepreneurs Assoc. BBS. Business opportunities, job shop, buy/sell, ads, personals. Networking for success. Free. [Exp. #100.]

SVCS BBS. (408)956-1204. 8-N-1, 24 hrs., 300/1200/2400/9600: Features MS-DOS, CAD, UNIX, GIF, WIN, LAN, & HAM. SIG conferences and email. Sysop: Fred Townsend. [Exp. #100.]

T24-Hours-A-Day BBS. (408)448-1126. 24 hrs., 300/1200/2400. Theme: 12 Step Programs. Sysop: Mike R. [Exp. #100.]

Texas Instruments PCs. (408)296-2503. 24 hrs., 2400. Message base, user group info & software for TIPC. Sysop: Mark Cantrell. [Exp. #99.]

The Village. (408)229-0706. 300/1200/2400/9600/14,400, USR-HST V.42bis, Online games, 400MB. Full access with first call. Sysop: Michael Wilson. [Exp. #101.]

415

4 Corners BBS. (415)989-0211. 24 hrs., 300–14,400. Online games, 5000+ files, msg's. Free access, low rates. Sysop: Stephen Kortz. [Exp. #100.]

38 North, 122 West. (415)343-7517. 8-N-1, 9600. Free boat-for-sale ads, psychotherapy, diplomacy game, interracial couples. Fido coming soon. [Exp. #101.]

ABACUS (Atari Bay Area Users Society). (415)587-8062. 300/1200/2400. For 8-bit and ST/TT users. [Exp. #99.]

ALIEN BBS. (415)359-8774. 8-N-1, 24 hrs., 1200–14,400. Amiga/IBM/Mac info. Adult boards w/registration. Free. Sysop: Ed Vandehey. [Exp. #100.]

Anatomically Correct BBS. (415)856-8425. 24 hrs., 2400. Free, adults only, unique "chat," dozens of articles & message base. Sysop: Howeird. [Exp. #99.]

Art/Online. (415)255-7045. 8-N-1, 1200/2400/9600. Fine Art Forum, local and international email. Sysop: Jim Raridan. [Exp. #100.]

Asian Exclusive Act. (415)338-7592. 24 hrs., 300/1200/2400, 9600 (Hayes only). Intelligent discussion of Asian American issues and events. All welcome, validation req'd. Sysop: Chin Ming Hornbuckle. [Exp. #100.]

Back Door For Bi/Straight Men & Women. (415)756-8452. 8-N-1, 24 hrs. 10 lines, 18 and over only. [Exp. #101.]

Back Door For Gay/Bi Men. (415)756-6238. 8-N-1, 24 hrs. 33 lines, alt lifestyles, 18 and over only. [Exp. #101.]

Back Door For Lesbian/Bi Women. (415)756-6426. 8-N-1, 24 hrs. 10 lines, alt lifestyles, 18 and over only. [Exp. #101.]

BAHUG BBS. (415)326-4486. 8-N-1, 24 hrs., 300/1200/2400. DTP info and help for Heath/Zenith machines. Free. Co-Sysops: Freeman Bradford and Ed Hayes. [Exp. #100.]

Bama Ultra. (415)552-0577. 24 hrs., 1200–14,400. Sun UNIX network, 1.5GB. UUCP, email, databases. Shell accounts. Guest login: visitor. Sysop: John Bouvier. [Exp. #99.]

BBS Of San Francisco Apple Core. (415)563-8652. 24 hrs., 2400. Lots of fun, supports Apple II and GS computers. [Exp. #99.]

The Boundary Line BBS. (415)398-6171. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Attorney sysop. For the real estate professional. Local conference only. Free. Sysop: William Mayo. [Exp. #100.]

California ConneXion Partyline. (415)927-2739. 8-N-1, 23.5 hrs., 300/1200/2400/9600/14,400. Nine lines, 400MB, group-chat, worldwide network, 40+ pubs, matchmaking, adults only. Reg required. [Exp. #99.]

California Online! (415)898-2565. 14,400. 5 lines, chat, echo-mail, adult areas, Windows. Free, registered access. Sysop: Jim Thornson. [Exp.

Continued

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BBSes continued...

In the same vein, Glatzer has opened up Prodigy-to-user communication with a weekly column about Prodigy written by the Prodigy person in charge of a particular area, and publication of "letters to Prodigy," complete with answers from the relevant staff person. Unlike the PR put out by Prodigy in the past, which often served to only antagonize users, the information from Prodigy management now seems authentic and straightforward.

Prodigy has also addressed the issue of trying to control the behavior of adults through censorship by putting the responsibility for children on the service squarely on the child's parents. At the same time, though, Prodigy has devised a way for parents to "lock out" certain areas if they disapprove of their children's reading or participation in that area.

Prodigy has distinguished itself this year with what might be the most extensive political coverage available on a national online service. Besides the Close-Up BBS where politics can be discussed, Prodigy is carrying incumbent voting information and biographies (the biographies have now been extended to cover challengers); history, definitions, and description of the thirty-two national political parties in the United States; information on PAC contributions and campaign funding from the Federal Election Commission (FEC); full text of major speeches; and more. Prodigy has made arrangements with President Bush and his campaign to answer a limited number of member questions online, beginning with an opening statement by the President planned for August 26 and followed on four subsequent dates (September 9 and 13, October 14 and 23). The Clinton campaign will also be participating, but at this writing dates are not yet confirmed.

Email is limited to thirty free messages a month, and additional messages cost 25¢ each. This policy, which arose from a few members abusing the public mailing list, puts a damper on the private communications that foster new online friends. Unfortunately, instead of policies and restrictions that would have stopped mass mailing but still allowed users relatively unrestricted communication with each other, Prodigy clamped down on everyone. Some potential (or former) users find this a sufficient reason not to use the service.

Prodigy has made many moves in the last six months which signal that perhaps its management now has a better understanding of the medium. Prodigy has always been a great service for kids, but is now becoming more suitable for adult participation as well (albeit through work-arounds in some areas). For $12.95 per month basic service, Prodigy has good entertainment value; but restricted email might be keeping away some potential customers who enjoy the relatively unrestricted social aspects of telecomm.

Resources:

Prodigy Services Company
P.O. Box 791
White Plains, NY 10601
1-800-284-5933

Is Your Listing Missing?

Free user group and association listings are limited to the group's name and a ten-word description, including the mailing address and contact phone number. They will be **deleted at six-month intervals** to ensure timeliness and accuracy of information. **Free BBS listings** are also limited to the board's name, sysop's name, and a ten-word description including parameters, baud rate, phone number, and registration fee. Because we have an ongoing problem of boards shutting down without telling us, much to the annoyance of would-be callers and the new phone number's owner alike, we will **delete these listings after they've run three months.**

You can update or renew your listings at any time. If yours is missing, send us a new one! Send your listing information to: US Mail should go to: MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. **Faxes** are welcome at (510)934-2417 or (213)467-5486.

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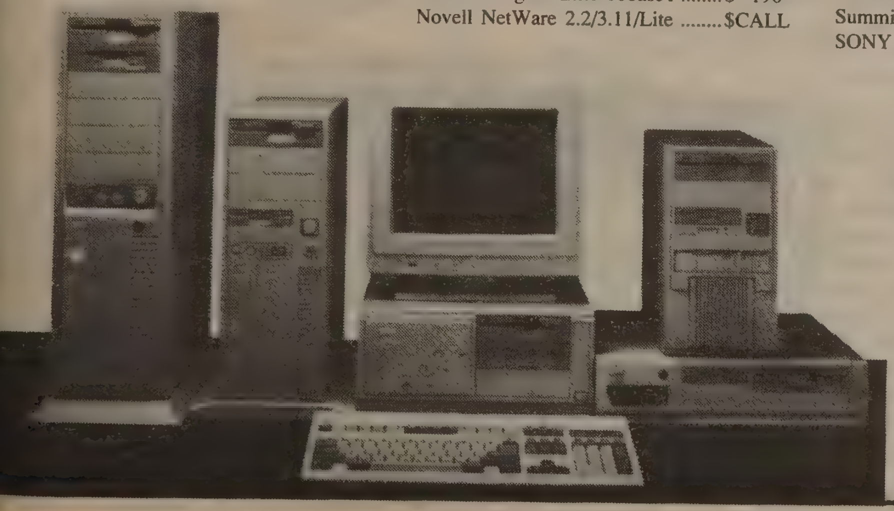

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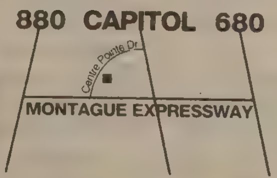

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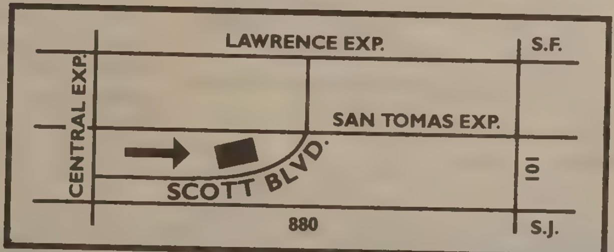

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707

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UNIX Online. (707)792-0402, 795-1721. 24 hrs., Usenet access. For UNIX, Amiga, Mac, and DOS users. [Exp. #99.]

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ASSOCIATIONS

American Association For Artificial Intelligence (AAAI). Call: (415)328-3123. Email: membership@aaai.org. [Exp. #100.]

Association For Women In Computing. Meetings: 1st Wed., 5:30 pm, San Francisco. Call: (415)979-8450. [Exp. #99.]

The Association For Worldwide Software Support Management. Meetings: 2nd Tues., Milpitas Sheraton. Call: Mikael Blaisdell, (415)865-1323. [Exp. #105.]

Association Of Database Developers (ADD). Meetings: 2nd Thurs., 7:00 pm, The Gatehouse, Fort Mason Center, San Francisco. Organization for professional xBASE language systems developers. Membership $50/yr or $5/meeting. Call: JoAnn, (415)863-6706. [Exp. #101.]

The Black Data Processing Associates, Silicon Valley Chapter. Meetings: 4th Thurs., 6:30 pm, Amdahl Corp., Sunnyvale. Call: Doug Jones, (408)737-5999. [Exp. #101.]

Computer Professionals For Social Responsibility. Meetings: 2nd Wed., 7:30 pm, UC Berkeley, Evans Hall, Rm. 608-7. Call: Judy Stern, (510)643-7499. [Exp. #105.]

Data Processing Management Association. Call: (415)978-0868. [Exp. #105.]

IEEE Computer Society, San Francisco Chapter. Meetings: 3rd Wed. Call: (415)905-4400. [Exp. #103.]

Independent Computer Consultants Association, Northern California Chapter. Meetings are open to all. Only national trade assoc. comprising non-aligned working computer professional with in-the-trenches experience. Call: ICCA, (415)441-2948. [Exp. #102.]

International Computer Professional Association. An association for software professionals who want to work abroad. Call: Tony Rodriguez, (415)252-7467. [Exp. #99.]

International Network Of Women In Technology. Dedicated to significantly increasing the leadership of Women in Technology in industry and government. Call: Dr. Carolyn Turybfill, (415)336-1007. Email: Carolyn Turybfill@Eng.Sun.COM. [Exp. #100.]

ASSOCIATIONS

Networkers' Toastmasters. Meetings: Every Tues., noon–1:00 pm, 2560 N. First St., San Jose. Call: Mona Kellem, (408)534-1255. [Exp. #101.]

North Bay Systems Professionals. Meetings: 3rd Wed., 7:00 pm, Holiday Inn, Terra Linda, 1010 Northgate Dr., San Rafael. NBSP provides a forum and network for system professionals. Call: Harry Chapman, (415)291-0174. [Exp. #101.]

Robotics Society Of America. Meetings: 2nd Mon., 8:00 pm, Exploratorium Library, San Francisco. Call: Brad Smallridge, (415)550-0588. [Exp. #101.]

SBEA (South Bay Entrepreneurs Association). Meetings: Twice weekly. Financial success and personal growth through teamwork. Call: (408)727-5950. BBS: (408)267-8325. [Exp. #99.]

Society For Technical Communication, Berkeley Chapter. Meetings: 2nd Wed., 6:00 pm, Yenching Restaurant, 2017 Shattuck Ave., Berkeley. Call: Rich Julius, (415)837-0397. [Exp #102.]

Society For Technical Communication, San Francisco Chapter. Meetings: 3rd Wed. Call: (415)985-7121. [Exp. #103.]

Software Entrepreneurs' Forum. Call: Barbara Cass, (415)854-7219. [Exp. #102.]

United Sysops Association. Meetings: 2nd Wed., 7:00 pm, Coco's, 1035 S. Mary Ave., Sunnyvale. Organization of bulletin board sysops and users. Call: Bill Strouse, (408)739-9081. BBS: (408)739-8753. [Exp. #105.]

USER GROUPS

ACCOUNTING SOFTWARE

Computer Associates User Group. Meetings: 1st month of quarter on 3rd Wednesdays. Holiday Inn, 1500 Van Ness. Come share ideas and information with other local users of Computer Associates Accounting Software! Call: Beth E. Markus, (415)864-6770. [Exp. #99.]

ACCOUNTMATE

AccountMate User Group. Meetings: 3rd Tues., 7:00 pm, S. Branch Berkeley Library, 1901 Russell St. Call: Joshua, 1-800-310-0262. [Exp. #104.]

AMIGA

3rd Dimension—Imagine/Lightwave User Group. Meetings: 1st & 3rd Mon., Computer Showcase, 2739 Geary Blvd., SF. Call: Ollie, (415)863-8792. [Exp. #102.]

AAA—Amiga Addicts Anonymous. Meetings: 3rd Tues., Concord Water District Bldg., 1311 Concord Ave. Classes, BBS, pub. dom. disks, info line. Call: (510)935-0829. [Exp. #100.]

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)829-6053. [Exp. #102.]

ALF—Amiga Learners Forum. Meetings: 3rd Sun., 6:00 pm, Cupertino Library. Beginners group. Call: (408)262-9334. [Exp. #100.]

Amiga User Group—Germany. German Amiga user group is seeking contacts in the US. Contact: Nils Wietelmann, Unter den Heestern 28, W-2839 Kirchdorf, Germany. [Exp. #102.]

AWEST Amiga Users. Meetings: 1st Wed., 7:00 pm, Computer Showcase, 2739 Geary, SF. Call: (415)584-8406. [Exp. #103.]

FAUG—First Amiga User Group. Meetings: 1st Tues., 7:00 pm, HT Electronics, 275 N. Matilda Ave., Sunnyvale. Call: Mike Fisher, (415)855-9426, BBS (415)595-2479. [Exp. #100.]

Redwood Empire Amiga. Meetings: 3rd Tues., 7:30 pm, Santa Rosa Plaza, Community Room. SIGs meet throughout month. Call: (707)523-9978. BBS: (707)795-2717. [Exp. #104.]

TOGA—The Other Group Of Amigoids. Meetings: Varying Sat., 12:30 pm, Milpitas Library, 40 N. Milpitas Blvd. Call: Lawrence Brown, (408)984-6036. [Exp. #104.]

APL

APL Bay Area User Group. Meetings: 2nd Mon., 7:00 pm. Call: Tibor Horvath, (415)283-5611. [Exp. #100.]

APPLE

Tri-Valley Apple II User Group. Meetings: 1st Wed., 7:00 pm, Glendale Federal Bank, 3101 Crow Canyon Place, San Ramon. Come and learn more about your computer. Support II+, IIc, IIe, IIgs. Call: (510)828-0959. [Exp. #99.]

AT&T

AT&T Computer User Group, North Bay. Meetings: 1st Wed., informal discussion at 6:00 pm, program begins at 7:00 pm, San Francisco AT&T Bldg., 50 Fremont St. MS-DOS and UNIX. Call: Jim Lansing, (415)885-6631 or Joe Mahoney, (415)584-6510; BBS (415)829-6027. [Exp. #99.]

AT&T Computer User Group, South Bay. Meetings: 2nd Wed., informal discussion at 6:00 pm, program begins at 7:00 pm, Sunnyvale AT&T Bldg., 1090 E. Duane Ave. MS-DOS and UNIX Call: Joe Lipsig, (408)733-6522; BBS (408)946-7734. [Exp. #99.]

AT&T UNIX Computer User Group, South Bay. Meetings: 4th Wed., new user education at 6:30 pm, program begins at 7:00 pm, Sunnyvale AT&T Bldg., 1090 E. Duane Ave. Call: Thad Floryan, (408)985-7100; USENET, thad@cup.portal.com. [Exp. #99.]

ATARI

ABACUS (Atari Bay Area Users Society). Meetings: 1st Sat. San Francisco. Call: (415)469-7924. [Exp. #102.]

BAAUG (Bay Area Atari Users Group). Meetings: 1st Mon., 7:00 pm, Agnews Aud., Santa Clara. Call: Andres Barbiero, (408)9803-9787. BBS: (408)986-0215. [Exp. #105.]

Santa Clara Atari User Group. Meetings: 2nd Wed., 7:00 pm, San Jose Computers Showroom, 1278 Alma Court, San Jose, near First and Alma. Call: Ron Reade, President, (408)225-7162. BBS: (408)848-6032, 300/1200/2400. [Exp. #99.]

BASIC

SF Bay Area Visual BASIC User Group. Call: Gustavo Eydelteyn, (510)547-7295. [Exp. #104.]

CAD/CAM

SF Bay Area AutoCAD/DCA Software User Group. Meetings: 3rd Wed., 6:30 pm. All CAD users welcome. Call: Michael Foley, (510)734-0707. [Exp. #103.]

COMMODORE

64/More CUG, Cupertino Chapter. Meetings: 3rd Sun., 6:00 pm. Cupertino Library. Call: (408)262-9334. [Exp. #100.]

64/More CUG, North Valley Chapter. Meetings: 2nd Sat., 10:00 am. Milpitas Library. Call: (408)262-9334. [Exp. #100.]

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)829-6053. [Exp. #102.]

CAVE—Commodore Amiga

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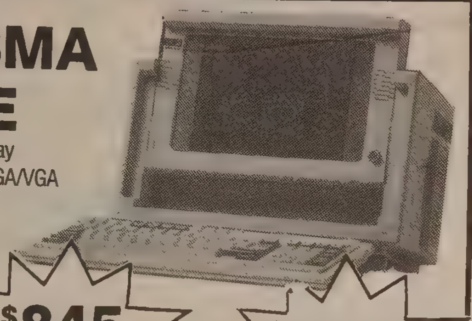

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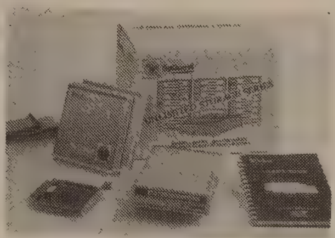

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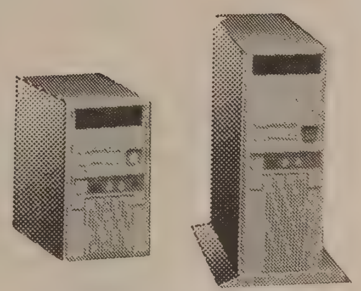

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Sept. 22	9am-5pm	TUES
Sept. 23	9am-5pm	WED
Sept. 24	9am-4pm	THURS

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☐ Please send a Seminar Schedule

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A. ATTENDEE CATEGORY (Check One)

A1 ☐ Exhibitor A2 ☐ Attendee A3 ☐ Press A4 ☐ Speaker A5 ☐ Conference

B. TYPE OF ORGANIZATION

RESELLER COMPANIES (Check One)

B1 ☐ Computer Retailer/Dealer
B2 ☐ Computer Services/Training
B3 ☐ Consultant
B4 ☐ Hardware Distributor
B5 ☐ Independent Sales
B6 ☐ OEM/Computer Manufacturer
B7 ☐ Software Publisher/Developer
B8 ☐ Systems Integrator
B9 ☐ Value Added Reseller/Dealer
B10 ☐ Other ______

END-USER ORGANIZATIONS (Check One)

B11 ☐ Aerospace
B12 ☐ Agriculture/Mining
B13 ☐ Business Services
B14 ☐ Education
B15 ☐ Financial Services
B16 ☐ Health Care
B17 ☐ Hospitality/Hotel
B18 ☐ Government
B19 ☐ Manufacturing
B20 ☐ Publishing/Broadcasting
B21 ☐ Retail/Wholesale
B22 ☐ Telecommunications
B23 ☐ Transportation
B24 ☐ Utilities
B25 ☐ Other ______

C. TITLE (Check One)

C1 ☐ CEO/President/Owner
C2 ☐ Vice President/Director
C3 ☐ Department Manager
C4 ☐ Project Manager
C5 ☐ Sales Representative
C6 ☐ Support Staff
C7 ☐ Tech Staff
C8 ☐ Other ______

D. NUMBER OF EMPLOYEES AT YOUR LOCATION (Check One)

D1 ☐ Under 10
D2 ☐ 10 - 49
D3 ☐ 50 - 99
D4 ☐ 100 - 499
D5 ☐ 500 - 999
D6 ☐ 1,000 - 4,999
D7 ☐ 5,000 - or more

E. JOB FUNCTION (Check One)

E1 ☐ Administration
E2 ☐ Engineering
E3 ☐ Executive Management
E4 ☐ Financial/Accounting
E5 ☐ In-house PC Support
E6 ☐ Network Management/Operations
E7 ☐ Press/Editorial
E8 ☐ PR/Publishing/Advertising
E9 ☐ Purchasing
E10 ☐ Research and Development
E11 ☐ Sales/Marketing
E12 ☐ Software Developer
E13 ☐ Systems/Software
E14 ☐ Maintenance
E15 ☐ Product Management
E16 ☐ Other ______

F. GROSS ANNUAL SALES

F1 ☐ Under $500,000
F2 ☐ $500,000 - $1,000,000
F3 ☐ $1,000,000 - $5,000,000
F4 ☐ $5,000,000 - $20,000,000
F5 ☐ $20,000,000 - $100,000,000
F6 ☐ Over $100,000,000

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Accommodations

Please indicate choice of hotels (4 options) by designating preference from 1 through 4 and specify arrival, departure, and share with (if applicable). COMPUEXPO Housing Group will advise you of your hotel assignment. Confirmations will be sent directly from the individual hotels with deposit requirements and cancellation policies. Room rates and tax, currently at 8% are subject to change. **1-800-662-8511**

Choice	HOTEL	Single	Double	Code*
	ALADDIN	$70	$70	
	ALEXIS PARK	$99	$99	A
	BALLY'S	$90	$90	
	DESERT INN	$95	$95	
	EL RANCHO	$50	$50	
	EMERALD SPRINGS	$85	$85	A
	FOUR QUEENS	$55	$55	B
	HACIENDA	$65	$65	
	HARRAH'S LAS VEGAS	$89	$89	
	LAS VEGAS COURTYARD	$92	$92	
	LAS VEGAS HILTON	$115	$115	
	MIRAGE	$119	$119	
	PALACE STATION	$75	$75	
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	RESIDENCE INN	$90	$90	A/C/D
	RIO HOTEL	$88	$88	
	SAN REMO	$88	$88	
	SHEFFIELD INN	$85	$85	A
	SHOWBOAT	$45	$45	
	STARDUST	$59	$59	
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	TROPICANA	$70	$70	

Cutoff Date for Convention Rate is August 14, 1992
After August 14, call COMPUEXPO Housing Group for room availability

Arrival Date ______ Departure Date ______

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*Codes:
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B - No Saturday Arrivals
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D - Includes Daily Breakfast

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Please refer to the seminar schedule on the front page to select your choices.

Please Check	Monday Sept. 21	Please Check	Tuesday Sept. 22	Please Check	Wednesday Sept. 23	Please Check	Thursday Sept. 24
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	A3		B3		C3		
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- Laptops/Notebooks/Handheld computers
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- Networking hardware and software
- Printers
- Multimedia
- Applications software
- Computers
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...and some others from China, Taiwan, and Eastern Block countries.

as of July 2, 1992

COMPUEXPO '92 Show Seminar Program

Monday Sept. 21	**Keynote Speaker: Gordon Campbell, CEO of Chips & Technologies**
A1	Compatible PC's for the next 10 years: Non-Intel CPU's come of age
A2	Marketing PC's in a commodity/price war environment
A3	Build or buy- resellers look at the new "OEM" environment
A4	Trade and marketing between the USA and Hungary Chairperson: Andy Hadju, Control, Inc.
Tuesday Sept. 22	**Keynote Speaker: Lucy Baney, VP, Software Systems Market Development of IBM**
B1	East-West Partnerships
B2	Creating Company & brand identity in a crowded marketplace
B3	Trade and marketing between the USA and Russia Chairperson: Tamirlan I. Gasanov
B4	Channel strategies for technology entrepreneurs
Wednesday Sept. 23	**Keynote Speaker: Richard Fade, Director, Far East OEM Sales of Microsoft**
C1	Beyond the Windows PC: Alternative Operating Environments
C2	Emerging technologies for the next ten years
C3	FCC Regulations and Compliance with Federal Agencies
C4	Notebook Revolution: Nomadic computing comes of age
Thursday Sept. 24	**Keynote Speaker: Industry Specialist**
D1	Taiwan PC Industry: The Next Ten Years
D2	China's PC Market: What's it mean for the USA?

Subject to change without further notice.

Video Enthusiasts. Meetings: Every other Sat., 8:00 pm, 304 Springs St., Old Suisun. Call: Ron, (707)421-2283. [Exp. #101.]

Commodore Hayward User Group. Meetings: 2nd Sat., 2:00 pm, Palma Ceia Park. (510)793-2514. [Exp. #101.]

CP/M

San Francisco Computer Society. Meetings: 7:00 pm, Laguna Honda School, 1350 7th Ave., San Francisco. Call: Ralph Gallegher, (415)929-0252. [Exp. #101.]

dBASE

ADD dBASE Software SIG. Meetings: 3rd Tues, 7:30 pm, Fort Mason Center, San Francisco. Led by Miriam Liskin. Call: JoAnn, (415)863-6706. [Exp. #101.]

ADD Fox Software SIG. Meetings: 1st Thurs., 7:00 pm, Fort Mason Center, San Francisco. Call: JoAnn, (415)863-6706. [Exp. #101.]

East Bay Database User Group. Meetings: 3rd Sun., 1:30 pm, 2415 Grant St., Berkeley. Call: David Chilcott, (510)653-1303. [Exp. #101.]

DESKTOP PUBLISHING

Bay Area Desktop Publishing User Group. Meetings 1st Wed., 7:00 pm, Nisha Software, 2493 Telegraph Ave., Berkeley. Topics include editing and publishing as a career. Call: (510)848-8200. [Exp. #103.]

San Mateo County Ventura Publisher User Group. Meetings: 3rd Mon., 6:45 pm, San Mateo ROP, 1800 Rollins Rd., Rm. 14, Burlingame. Call: Elinor Cruze, (415)366-5317. [Exp. #99.]

FREEDOM, PRIVACY, AND TECHNOLOGY

BMUG SIG On Freedom, Privacy, And Technology. Meetings: Last Sun., 2:00 pm, BMUG office, 2055 Center St., Berkeley. Call: Judi Clark, (510)549-2684. [Exp. #104.]

IBM AND COMPATIBLES

Alameda Computer User Group. Meetings: 2nd Wed., 7:30 pm, Social Hall, Temple Israel, Island Dr. and Mecartney Rd. Providing an informal forum for both Macintosh and PC users to explore questions about hardware and software. Call: Dan Meyers, (510)521-3323. [Exp. #99.]

Berkeley PC User Group. Meetings: 2nd Mon., 7:00 pm, Winners Circle Systems, 2618 Telegraph Ave., Berkeley. Presentations followed by discussion, PD library, newsletter, Geo Ensemble SIG. Call: Mel Mann, (510)526-4033. [Exp. #101.]

Delta PC Users Group. Meetings: 3rd Sat., 10:00 am. Call: (510)427-2255, ext. 744. [Exp. #101.]

DVPC—Diablo Valley User Group. Meetings: 1st Thurs., 7:30 pm. SIGs include WordPerfect, Windows, Paradox, Beginner's, Visual Basic, education/entertainment, and new users. Call: (510)943-1367. [Exp. #105.]

EastBay FOG. Meetings: 2nd Wed., 7:30 pm, Apostleship of the Sea, 600 Terminal St., Oakland. All microcomputers, MS-DOS, CP/M. Call: (415)272-9099. [Exp. #101.]

EPIC—EastBay PC IBM Computer Club. Meetings: 2nd Tues., 7:00 pm, Milpitas Library, 40 N. Milipitas Blvd. Beginners welcome. [Exp. #100.]

Golden Gate Computer Society (GGCS). Meetings: 4th Mon. 7:30 pm, San Rafael Community Center. Free intro to computers class at 6:00 pm. Call: (415)927-2909. [Exp. #102.]

IBM Technical SIG. Meetings: 2nd Thurs., 7:00 pm, Cubberley Community Center, 4000 Middlefield Rd., Rm. H-1, Palo Alto. Sponsored by Software Entrepreneurs' Forum. Call: Mike Schmit, (408)244-6826. [Exp. #104.]

Micromate-CP/M-DOS User Group. Meetings: 1st Thurs., 7:30 pm, Chabot Observatory, 4917 Mountain Blvd., Oakland. Call: Ed Miller, (510)376-1611. [Exp. #99.]

NBUG—North Bay User Group. Meetings: 2nd Thurs., 7:30 pm, 330 Rogers St., Vallejo. All computer users welcome. Call: (707)644-9327. BBS: (707)643-NBUG. [Exp. #100.]

PC BasicS: Silicon Valley Computer Society SIG. Meetings: 3rd Mon., 7:30 pm, 847 W. Maude Ave., Sunnyvale. Talks presented by Rich Wingerter of Zip Consulting & Design. Call: (415)326-2435. [Exp. #101.]

Peninsula Computer Club. Meetings: 2nd Thurs., 7:30 pm, Social Room, 222 Laurel St., San Carlos. DOS and CP/M libraries. Call: Larry Welling, (415)593-9981. BBS (415)571-9259. [Exp. #99.]

San Francisco Business Computers. Meetings: 4th Thurs., 5:30 pm. For those who use computers in business. Visitors $5. Call: (415)788-5338. [Exp. #104.]

San Francisco PC Users Group. Meetings: 3rd Tues., 6:15 pm, Conference Center, Bldg. A, Fort Mason. Call: (415)929-1993. [Exp. #101.]

South Bay WordPerfect User Group. Meetings: Monthly, dates vary. Saratoga Community Library. Free. Call: Martin Van Derpool, (408)238-8434. [Exp. #99.]

Stanford/Palo Alto PC User Group. Meetings: Last Wed., Turing Aud., Stanford. DOS/Windows. Call: (415)329-8252. [Exp. #103.]

KNOWLEDGEMAN

Bay Area KnowledgeMan (And Guru) User Group. Meetings: 1st Tues., 6:30 pm., JNZ, Inc., 826 Las Trampas Rd., Lafayette. A forum for discussion and info concerning mdbs products, esp. KnowledgeMan and Guru. Call: (510)947-4878. [Exp. #101.]

LAPTOPS

HPX HP Laptops & Handhelds. Meetings: 2nd Sat., 10:30 am, Sunnyvale. Call: Michael Felsenstein, (415)564-8279. [Exp. #100.]

MACINTOSH

A32 Macintosh User Group. Meetings: 2nd Sat., 10:00 am, GTE Cafeteria, 100 Ferguson Dr., Mountain View. Call: (408)263-0398 days. [Exp. #103.]

BMUG—Berkeley Macintosh User Group. Meetings: Every Thurs., 6:00 pm, Physical Sciences Lecture Hall, UC Berkeley Campus. Call: (510)549-BMUG. [Exp. #101.]

BMUG West. Meetings: Last Mon., 6:30 pm, San Francisco Exploratorium. Call: (510)549-BMUG. [Exp. #101.]

International Macintosh Users Group (IMUG). Meetings: 3rd Thurs., 6:45 pm, location varies. A forum for multilingual computing. Call: Roger Sherman, (415)859-5146. [Exp. #101.]

Let's Go Macintosh Computer Society. Meetings: 3rd Thurs., 7:00 pm, Skyline Jr. College, Media Center, Rm. 2105, San Bruno. See and try interesting new products, meet other Mac users, hear guest speakers. Call: Fidel Cajulao, (415)221-2995, or Nolan Apostle, (510)947-2523. [Exp. #103.]

Macintosh SIG. Meetings: 3rd Tues., 7:00 pm, Apple Cafeteria, City Center 4, De Anza and Rodrigues, Cupertino. Sponsored by Software Entrepreneurs' Forum. Call: Jeff Cherniss, (408)356-9901. [Exp. #104.]

Macs Of Marin. Meetings: 2nd Thurs., 7:00 pm, Redwood High School, Larkspur. Marin County Mac User Group for all levels of expertise, beginners welcome, SIGs. [Exp. #102.]

SMUG (Stanford-Palo Alto Macintosh User Group). Meetings: 1st Mon., 7:00 pm, Syntex Conference Center, 3401 Hillview Ave., Palo Alto. Call: (415)328-4933. [Exp. #99.]

SPC Apple User Group. Meetings: 2nd Wed., 7:30 pm, Fremont Main Public Library. The Society for Prevention of Cruelty to Apple Computers Users Group supports all Apple and Macintosh computers. Call: Jim Weil, (415)796-7169. [Exp. #100.]

Women's Macintosh User Group. Meetings: 2nd Tues., 7:00 pm, ComputerWare, Palo Alto. Call: Buffy Joseph, (415)792-2840 or Tayna Halepota, (415)949-3936. [Exp. #100.]

MULTIMEDIA

BMUG Multimedia SIG. Meetings: 2nd Mon., 6:00 pm, Call: (510)549-BMUG. [Exp. #100.]

International Interactive Communications Society—IICS. Meetings: 2nd Wed., 7:30 pm, Call: IICS Hotline, (415)328-7318. [Exp. #99.]

Multimedia SIG. Meetings: 1st Thurs., 7:00 pm, Cubberley Community Center, 4000 Middlefield Rd., Palo Alto, Rm. H-1. SIG of Software Entrepreneurs' Forum. Call: Patrick Milligan, (408)257-1547. [Exp. #99.]

Multimedia User Group. Meetings: 1st Wed., 7:00 pm, 600 Townsend St., 1st Fl., San Francisco. A forum to learn about the multimedia industry, get your questions answered, and meet with fellow professionals. Sponsored in part by Proxima and Mitsubishi. [Exp. #102.]

MUSIC

MuSIG. Meetings: 1st Sun., 2:00 pm. Various locations. Based in Palo Alto. A network of people helping each other learn about computers and music: MIDI, hardware, software, performance, and programming. Call: (415)858-1493. AppleLink: UG0390. [Exp. #99.]

NETWORKING

NetSIG. Meetings: 4th Tues., 7:00 pm, Novell Sunnyvale. Networking SIG for Software Developers. SEF group. Call: Skip Addison, (408)747-4356. [Exp. #100.]

NEURAL NETWORKS

Neural Networks SIG. SIG for Neural Networks and its applications. Call: Kumar, (408)946-5835. [Exp. #99.]

NEXT

BANG—Bay Area NeXT Group. Meetings: 3rd Wed., 7:00 pm, Terman Aud., Stanford. Presentations and lectures. Call: (415)327-BANG. Email: info@BANG.org. [Exp. #102.]

Berkeley NeXT Users Group. Meetings: 2nd Tues., 7:00 pm, 2055 Center St., Berkeley. Call: Bernt Wahl, (510)644-0139. [Exp. #101.]

NOVELL

Silicon Valley Novell User Group. Meetings: 3rd Wed., 6:30 pm, Coco's, 1305 S. Mary Ave., Sunnyvale. Call: Bill Strouse, (408)739-9081. BBS: (408)739-8753. [Exp. #104.]

OMNIS 7

GUIdata Bay Area Omnis 7 User Group. Meetings: 1st Mon. Newsletter, forum for all users. Call: Peter Bennett, (510)935-5203. [Exp. #101.]

OS/2

OS/2 Bay Area User Group. Meetings: 4th Mon., 7:00 pm. For anyone interested in OS/2. Presentations, product demos, questions and answers. Call: (415)755-3124. [Exp. #103.]

PEN COMPUTING

Pen Systems SIG. Meetings: 4th Wed., 7:00 pm, Cubberley Community Center, Rm. H-1, 400 Middlefield Rd., Palo Alto. SIG of Software Entrepreneurs' Forum. Addresses all issues of interest for developers of pen computing software. Call: Bill McApline, (415)348-2257 or SEF at (415)854-7219. [Exp. #101.]

PROJECT MANAGEMENT

Microsoft Project User Group. Meetings: 3rd Mon., 6:30 pm, TEK/LINK Corp., 2901 Tasman Dr., Suite 207, Santa Clara. Project management solutions with Microsoft Project software—both PC and Mac. Call: Henry Viveiros, (408)293-5201. [Exp. #101.]

Q&A

East Bay Q&A User Group. Meetings: 4th Tues., 7:00 pm, San Leandro. Developing and expanding the many uses of Q&A database/word processor program by Symantec. Call: (510)475-8062. [Exp. #102.]

West Bay Q&A User Group. Meetings: 2nd Tues., 7:00 pm, Redwood City. Developing and expanding the many uses of Q&A database/word processor program by Symantec. Call: Philip Edwards, (510)475-8062. [Exp. #102.]

R:BASE

Peninsula R:Base User Group. Call: Don Whitecar, (415)592-5033. [Exp. #99.]

SQL

SQL_Forum/Bay Area SQL Database Server User Group. Meetings: Once a month in downtown SF. Oracle, SQL Server, SQLBase, and more. Call: Robert Gentry, DBBS, Inc. (415)583-3000. [Exp. #99.]

TELECOMMUNICATIONS

BMUG Telecom SIG. Meetings: Last Wed., 8:00 pm. How to use your modem, terminal programs, and the BMUG BBS. Call: (510)549-BMUG. [Exp. #101.]

SDL Interest Group. Meetings: 1st Thurs., 5:00 pm, Anonymin, 50 University Ave., Los Gatos. To discuss and exchange ideas on SDL, the CCITT z.100 standard for telecommunications description and design. Call: Malou Zanni, (408)399-5030. [Exp. #103.]

TEXAS INSTRUMENTS

Santa Clara Valley TIPC Group. Meetings: 4th Thurs., 7:00 pm, Magnolia Inn, 176 S. Bernardo, Sunnyvale. Newsletter, library. Call: Thor, (415)386-5237. [Exp. #102.]

TI-99/4A. Meetings: 2nd Sat., Oakland. Call: Fred, (510)530-8335. [Exp. #100.]

THEOS

Theos User Group. Call: (510)785-7355. [Exp. #100.]

UNIX/XENIX

N. Cal UNIX Users. UNIX user group now forming: AT&T UNIX, Coherent, SCO UNIX/XENIX, and LINUX. Write: Just Computers, PO Box 355, Cotati, CA 94931. [Exp. #99.]

UNIX SIG. Meetings: 2nd Tues., DEC, 800 W. El Camino Real, Mountain View. Sponsored by Software Entrepreneurs' Forum. Call: Priscilla Rowe, (415)776-0513. [Exp. #98.]

VIDEO TOASTER

Video Toaster User Group. Meetings: Last Thurs., 7:00 pm, HT Electronics, 275 N. Mathilda Ave., Sunnyvale. Special guests, equipment demos, hands-on workshops, plus info/tips on new System 2.0. $4 for non-members. Call: Andrew Timmins, (408)243-9233 (eve). [Exp. #104.]

WINDOWS

BMUG Windows Programmers SIG. Meetings: 1st Tues., 6:30 pm, 2055 Center St., Berkeley. The Programmers SIG is a forum for Windows programmers of all levels to meet and exchange information. Call: Ferdinand Rios, (510)526-3031. [Exp. #104.]

WinSIG. Meetings: 1st Wed., 6:30 pm, Cubberley Community Center, Rm. H-1, 4000 Middlefield Rd., Palo Alto. Windows SIG of the Software Entrepreneurs' Forum. Call: Fran Finnegan, (415)929-7386, or Barbara Cass, (415)854-7219. [Exp. #105.]

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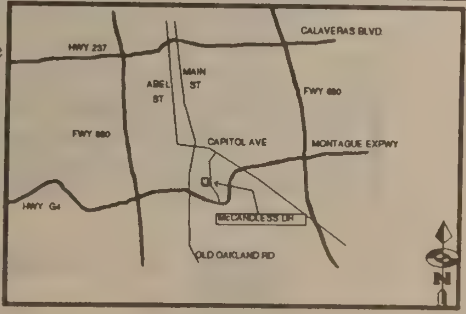

Continued from page 56

stands the process of customer support at all levels. QuickBooks has a good, readable manual, good on-screen help, and free technical support for registered users (though not through a toll-free number).

The on-screen help has a nice feature called QuickTrainer, which is context-sensitive help that comes up automatically if the user pauses overly long at a prompt. This option, which can be turned off, might seem to be potentially annoying, but I found it was a helpful feature while learning the program. Help can also be accessed in a normal manner using the F1 key either in a context-sensitive or topic index manner.

QUICKBOOKS, NOT FOR EVERYONE

While I give QuickBooks a very strong recommendation, it is worth noting features of businesses that might find the program inadequate. The first would be need for a physical inventory program. As noted above, QuickBooks has an inventory list for invoicing but it does not allow maintenance of amounts on hand or valuation. A business with a large or complex inventory would find itself having to implement other solutions to get good inventory management.

QuickBooks is single-user software, so if multiple data entry points are necessary, QuickBooks would not be appropriate. This situation is compounded by the fact that there is no way to import data into QuickBooks. (QuickBooks will convert Quicken data but this is a startup feature for people who are converting from a Quicken bookkeeping system). Thus, there is no way to use a different data gathering system and then import summaries into QuickBooks.

People who know Quicken or are converting from Quicken should know that a few features from Quicken are not included in QuickBooks. Two that are worth mentioning are electronic bill payment and investment tracking. Generally these are not small-business requirements, but some business arrangements might require these features.

A final area to consider is payrolling. Because of the complications of withholding and the complex reporting requirements, payroll is technically the most challenging accounting problem most small businesses face. It is possible to set-up QuickBooks to keep payroll records. There is a chapter in the manual that adequately explains the process, but it is a bit complex. Alternatively, Intuit publishes a program called QuickPay that integrates payroll data with QuickBooks (or Quicken). Unfortunately, while adequate, QuickPay doesn't come up to the ease of use and understanding that QuickBooks has. It is hard to give it an unqualified recommendation. Depending on the complexity of their payrolling situation, small businesses may find it desirable to stick with a manual system, an outside payroll service, or a different payroll program, though these all require manually entering summary totals of payroll information into QuickBooks.

The standard warning that a business should not implement an accounting program—whether computerized or otherwise—without careful planning is as old as data processing, and is certainly true, even in the case of QuickBooks. The advantage that QuickBooks gives however is that with QuickBooks the planning process can focus on defining business requirements not on learning the traditional structures of accounting systems. Most small business users will find this a refreshing change from any other accounting package they have considered. ■

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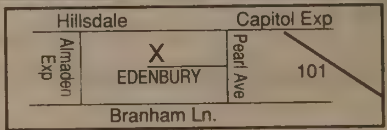

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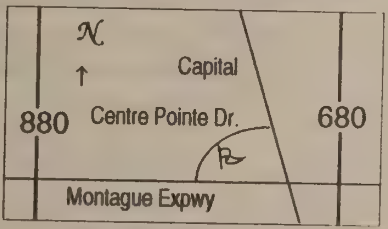

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Continued from page 58

uct and service it offers. With the new arrangement, whenever the company updates these cost and pricing cells, the spreadsheet automatically uses the new information in calculations for all present and future clients.

The procedure for using this spreadsheet system is simple: each time a new client signs a contract, the person operating the computer copies the "template block" of cells to an open location in the spreadsheet. All the quantities in the template are set to "0." They're never changed. But after the template block is copied for use with a new client, the person operating the computer changes the quantities to reflect the client's order. Each "quantity" cell in this "client block" is filled with the specific number of photos or other items the client has ordered. Instantly, the formulas calculate client charges for the complete order.

The operator also enters any deposits or other amounts paid, and the spreadsheet software calculates the balance due. The total amount of the purchase, the amount paid, and the balance due are posted at the bottom of the client block. The result is an itemized bill for the client that can immediately be printed.

The purchase total, amount paid, and balance due are also picked up automatically in separate columns of the client block, where they are instantly totaled for accounting purposes at the top of the spreadsheet. When payments come in, they are easy to post to the client's information on the appropriate spreadsheet. They automatically cause the "amount paid" and "balance due" formulas to recalculate and reflect the current amounts.

Every three months, the company starts a new spreadsheet and relegates the old one to archives and reference. This makes accounting easier, and also prevents a spreadsheet from becoming so filled with client information that it is slow and cumbersome to use. At the end of the year, a separate spreadsheet is used to "extract" the totals from all the quarterly spreadsheets and provide a year-end summary of business activity.

Client contact is handled through the word processor program. Obviously, the company's basic contract is stored on a word processor and printed individually for each new client. In addition, the company stores a series of form letters, separated by hard page breaks, within a single word processing file. The file contains four types of letters: contact letters that assure clients the next step of their contract is well-in-hand, marketing letters that offer additional or supplementary services (usually sent out after the original contract has been completed), standard bill forms asking for payments due under the contract, and a selection of collection letters sent out when a client's payments to the company are overdue. For easy reference and movement through the file, each letter has its own name, stored as a nonprinting notation at the top of each letter.

Whenever a new client is signed, that client's name is posted in a client contact file, followed on the next few lines by the dates when the client is scheduled to receive specific follow-up letters. The operator simply reads dates from a calendar and types them into the file. The dates are spaced equally throughout the term of the contract, and also reflect the first five anniversaries following the contract's completion date.

Once a week, the proprietor electronically searches this client contact file for current dates, and when he or she finds a current date listed, notes which letter is scheduled for that client. He or she then uses preprogrammed keyboard macros to do three computer operations:

1) the first operation blocks and copies the client's name to the letter scheduled to be sent out, (for the bills and collection letters, the amount due from the electronic spreadsheet must be entered manually in the word processor),

2) the second operation prints the letter, and

3) the third operation blocks and copies the letter (with the filled-in name, address and amount) to an archival file for that particular client.

A whole week's worth of correspondence can be generated and archived in less than half an hour. It would have been possible to print envelopes, too, but to eliminate that step and make computer operations simpler the letters are sent in standard window envelopes.

Although the system works fine, the company is investigating the potential costs and advantages of upgrading it to a Windows environment. The reason is that Windows may make it easier to get the spreadsheet and the word processor interacting more closely. For example, with Windows the word processor may easily be programmed to pick up the amounts called for in the billing letters automatically from the spreadsheet software.

Windows may also facilitate automating the client contact process. Rather than requiring the operator to search for today's date in the client contact file, the computer may someday remind the operator automatically each day or week about letters that are scheduled to be sent.

Whether or not the company moves its billing and contact system to Windows, because the system uses a word processor and a spreadsheet, its inner programming remains easily accessible, and thus can easily be changed to meet new requirements and business opportunities.

> ***They considered paying a programmer to create a custom software system to handle all this work, but it seemed easier and more efficient to cobble together a system using off-the-shelf spreadsheet and word processing software.***

It may be that specialized accounting or other software, or a customized program would do a better, more complete job of automating this company's client contact and billing activities. But the fact is that this system meets the company's needs with a minimum investment, a minimum risk of programming problems, and a maximum opportunity for continuing adjustments and improvements that the business owner can understand and perhaps even make on his own. What's more, the system has minimal training requirements beyond the basics of knowing how to operate the spreadsheet and the word processor themselves. ■

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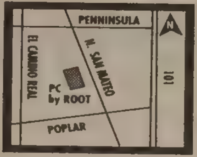

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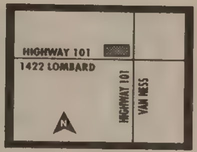

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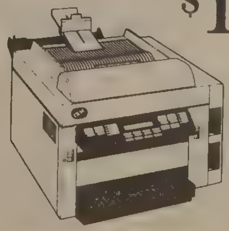

PC MAGAZINE
EDITORS' CHOICE
November 26, 1991
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Continued from page 70

of it through engineering, some of it through marketing) to make sure that SVR4.2 is perceived in a different light. The new UNIX will have a GUI integrated with the operating system, with the result that a user need never deal with a command line interface to UNIX.

Two points are worth making about the SVR4.2 GUI. It is the product of a great deal of research into what users want (that is, it is not just what the engineering team thought would be nice), and it will support both of the orientations (Open Look and Motif) that compete to be the standard GUI among UNIX vendors.

With the GUI closely coupled with the operating system, USL can offer a new interface to System Administration functions, and this should make managing an SVR4.2 system considerably easier than managing earlier versions.

The overwhelming message of the literature about SVR4.2 is that UNIX "externals," its user interface and ease of use, are as important as its internals.

Beneath all this there are still lots of unanswered technical questions of great interest to the people who actually use UNIX currently. It would be good to know, for example, how the new UNIX will perform and what its configuration possibilities and limits are.

The marketing literature indicates that the minimum configuration for an SVR4.2 system is 4MB RAM and 60MB of disk space, though it readily concedes that the minimum system is far from optimal for performance. This indicates that the system is relatively lean, and particularly that the software that manages the user interface has been highly optimized. There are also indications that the UNIX kernel has been modularized, so the system takes up no more memory than is needed for the functionality actually exercised by users. This, too, is a good thing.

THE PERILS OF MARKETING

It is easy to imagine that people who market UNIX have trouble addressing these technical issues. Technical issues are a kind of trap for people in marketing: technical questions are almost inevitably complicated, and if you set about answering a complicated question in a piece of marketing literature, you run the risk that people will perceive the product being marketed as being complicated as well.

Marketing is the delicate game of saying what most of the audience wants to hear and hinting at what the rest of the audience wants to know. Undoubtedly it is a lot easier if the product is sugared water.■

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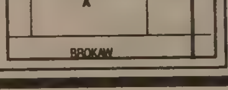

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Continued from page 180

tainment parts of the services.

USER-FRIENDLY—BOON OR BANE?

Until about two years ago, to dial into a service like CompuServe, you could use any "terminal emulation" program. The result was very bland, looking like something designed in the '70s (which it was). CompuServe users who were tired of the interface created better software for using CompuServe, and eventually CompuServe bought the software and now sells it itself.

America Online has always had its own interface software. In fact, you have to use that software to access America Online; you don't have the choice of an old "terminal-style" interface. Because of this, every America Online subscriber has a consistent view of the information, and it is easier for the people at America Online to design in new features.

Having good-looking applications to access online information is a great boon to users, but it further blurs the line between computers. For example, the CompuServe and America Online interface programs on the Macintosh look just like most other Mac programs. When you access information from the service, it feels like you got that information from your own Mac. Of course, the information isn't in your Mac, it's in the remote computer. The illusion of "localness" of the information is more complete, and therefore more confusing for some users who can't tell why the information disappears when they log off from the remote service.

After using a PC for daily work such as word processing and spreadsheets, and then using a modem for online discussions and data-gathering, many people start finding the blur between their computer and the remote computer very confusing.

PERSISTENCE OF MEMORY

Online services are the most popular source of shareware and public domain software. Many people subscribe to CompuServe and its competitors just so they can download the latest files. Once the file is downloaded, you can run the program or view the data at your leisure. Although many users never download software, those who do eagerly await updates or new programs to try.

This is the first step in online services becoming like computer networks. These two are still more different than similar, however. You aren't connected to an online service all the time like you are with a network. Further, after you download a file from an online service, the file exists in both locations; with a network, the main idea is that the information is only in one place.

The future lies in online systems that can seem like they are local networks. Users won't feel as confused when they can just get at the information they want in a manner similar to what they currently use on just their local system. There will always be the problem of determining which computer is failing when something goes wrong, but creative systems programming is starting to both make communications more reliable and identify the problems to the user better. As people become more comfortable with not knowing where their data resides, they will have greater opportunities for gathering data from non-traditional locations, and traditional online providers will have a larger audience. ■

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Continued from page 88

tops essentially are the consumerization of personal computing into highly affordable, highly accessible, highly mobile kinds of access devices, where you really could carry in your pocket a device that makes it fairly easy for you to send mail, for example, or get your stock quotes. It could be an important way for people who are currently not comfortable with computers to connect to these kinds of services.

Screen-based telephones are the same kind of thing. AT&T and Northern Telecom and other companies are working on taking a computer and a phone and merging them together so you have a smart telephone with a good display that would allow people to access these services as well.

Television is the third area. A number of companies are working on ways to provide computer technology in television, which again could be an important way to deliver the kind of services we're providing.

All three of them are ways that people who currently are not comfortable with a desktop personal computer—and millions of people are not comfortable with desktop computers—can participate in these kinds of online services. Seniornet, for example, is a group of people that has a driving interest in communicating and sharing information, but right now one of the barriers is that you have to own a desktop computer to participate. If they could access those services through a simple telephone or a palmtop device, millions of additional people would suddenly be interested in this online medium.

Is it a matter of waiting for standards to emerge before you can build anything useful?

Well, there's some of that, certainly. Because there are now interesting new market opportunities, there are now lots of different companies chasing those, and coming up with lots of different interesting, but usually incompatible, ways to meet those needs.

We're looking at the various options. We're likely to put our toe in the water sooner rather than later in trying to understand how these new kinds of products could broaden the online medium. But certainly, in order to make a major commitment to it, it's going to require some coalescing of the different alternatives so it's clear what platforms we should be betting on.

Do you think Newton is a likely contender for that?

I think it's certainly a contender for that. On the palmtop side, the two major contenders at this point seem to be Newton and what Tandy is doing in conjunction with Casio and GeoWorks and Palm Computing. I think the Tandy-Casio venture is probably more likely to focus on the mass consumer market, with highly inexpensive devices.

GameBoys for telecomm.

Sort of, yeah. Or Sharp Wizards On Steroids is the other way people look at it.

I think Newton is initially going to focus on a higher-end part of the market. But the interesting thing about both approaches is that they have the desire to move those technologies into other kinds of devices. Apple's already made it clear that Newton is a technology, not a product, and that they hope Newton technology will one day be in screen-based telephones and televisions and other kinds of devices. If they're successful in doing that, it obviously becomes a more interesting platform for America Online than if it's a dedicated notepad device.

But overall, our objective of growing a mass medium and mass electronic communities is going to be fueled by the development of different ways for people to access these services, whether it's Newton or Tandy and Casio or AT&T's Smart Phone or any of the other kinds of things that are starting to come out, that are encouraging developments because they take the computing capabilities and extend the reach of them into the mass market. And we'll be there with services that people will enjoy using and will be able to afford using and won't have a lot of trouble using.

How significant do you think wireless in general is going to be?

I think it'll be very significant as it relates to things like palmtops. That's certainly one of the key areas where they can add value, through wireless connectivity.

It's not likely to play much of a role in the next few years, particularly in the consumer market, because the standards aren't clear and the prices of those wireless services are still fairly high.

But the dream of having a device that you can carry with you, that will fit in your pocket, that any time you receive email it automatically displays on your screen, any time you want to send a message to somebody you just type it in and push a button, whether you're on a boat or on a plane or in the office—clearly we're moving quickly to that goal, and a lot of companies are coming up with some very innovative solutions to meet that need. So now it's no longer a dream, it's just a matter of making those technologies affordable and accessible to the masses. And we're not too many years away from that outcome now.

I was reading someplace that your pricing structure is different for PC and Mac. This was news to me, because I've always used the Mac software since the beta test days.

What it really is is part of our attempt to create a broader number of customers subscribing to America Online. We were always looking at all the different aspects that might contribute to growing the membership base faster, and one that certainly impacts it is pricing.

So what we've been doing, for the last couple of years, is constantly testing different pricing options to try to understand what customers prefer. Our intent is to have one price that everybody pays, but like a lot of direct marketing companies, we do try to understand what customers really prefer by testing it out in the marketplace.

Most magazines, for example, have lots of different prices you pay depending on how you subscribe and when you subscribe and so forth. They're not doing that to confuse people, they're doing that to come up with the optimum way to price their magazine. We're really trying to do the same kind of thing. We want to get feedback from customers to help us make those decisions, as opposed to try to do them in a vacuum.

When people use multiple computers, they can still share the same America Online account. Whatever you start with, we'll continue to honor that. We're not forcing somebody into some different pricing structure.

It's probably just motivated by the desire to make things simple and affordable. For example, in the Macintosh world we have a pricing structure that charges more if you get on during the day than if you get on at night, and the reason for that is our costs during the day are quite a bit higher. But one of the things we wanted to test out was whether, if we had a flat rate twenty-four hours a day, that would be simpler and therefore more appealing to consumers, and that's what we're trying to find out.

Other than numbers, did you notice any cultural shifts when the PC people got on? I noticed that there was a lot more foot traffic all of a sudden!

Well, before, what we were doing was running separate services for separate platforms, so the Macintosh service was separate from the PC-Link service, and so on. We felt that was appropriate for several years, because part of our positioning in the marketplace was trying to create services that met the needs of each of the different computer segments we were going after, and we felt that a Commodore 64 owner had somewhat different interests from a PC compatible owner or a Macintosh owner.

Over the last year that's blurred, and we felt it was more appropriate to bring them together into one larger electronic community. So that's what we did—we interconnected our PC-Link service with our America Online service. There obviously was some social change, because suddenly there were twice as many people participating in the same areas, and a lot of the people were kind of new to the neighborhood. It took a couple of months of people getting used to it, but it seems to be working pretty well now.

Things like the Microsoft Small Business Forum are dual-platform things?

Right. And really, that's the direction we're going in. The services we're adding, like Chicago Online, are accessible to all the different people who are members of America Online.

We just don't think it's appropriate any more to segment based on what kind of computer you own. There are certainly some differences between a typical Macintosh owner and a typical PC compatible owner, but they're much fewer than they were five years ago. People are people, and we're trying to create electronic communities to meet their needs, whether it be business interests or career interests or hobbies or what have you. And in those areas people care less about what kind of computer you own than what kind of interests you share.

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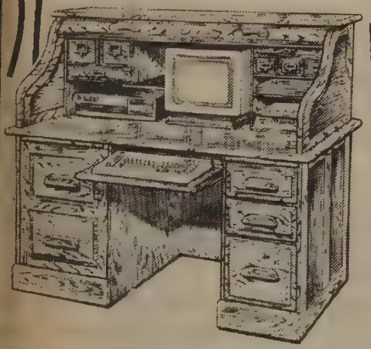

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On the PC and Mac services, each of them, there are more than twenty thousand software files now, on a wide variety of topics ranging from business templates to games to graphic programs and so forth. We think we'll continue to grow that, based on members submitting new and interesting programs.

The second comes from publishers. We now have one hundred software publishers, including Microsoft and Word Perfect and Claris, providing support online, and just answering questions from users. They also generally have software libraries so people can download the recent updates and templates and so forth. We expect that to continue to grow as well, as we add additional publishers.

I've noticed quite a discrepancy in how plugged into this various vendors are. Some are quite responsive; with others, I've sent support questions a month ago and still haven't heard back.

That's not good. I'd like to know exactly who they are so we can follow up on it.

But the main issue there is getting companies to view online support as an integral part of the way they serve their customers, as opposed to sort of an afterthought. And it is kind of a cultural change for some of the companies—it just takes a while for them to understand it.

The companies that have been doing it for a while understand that it's really a powerful way to provide better support to customers more cost-effectively, because you create this environment where your customers are helping each other. It's sort of self-sufficient support—somebody posts a question, and some other user of the product actually answers it often before the company itself gets to it. So it's a very powerful way to provide better support less expensively, and more and more companies recognize that. There are certainly some that are just trying it out for the first time and don't really have the commitment to it that they will over time. We just think that the situation will continue to improve as more companies do it and understand the value of doing it.

Out here there's a service just starting up called AMIX. There's apparently been a lot of interest from software companies about using it as an upgrade delivery mechanism, because you can just download the upgrade, pay the fee to AMIX, and AMIX pays the vendor, and all this is much simpler than the usual song-and-dance. Do you envision doing anything similar?

Well, sure. We actually do that now, we typically just don't charge for the upgrade. It would be relatively easy for us to add a mechanism so that when you download a program, you're charged a certain amount for it. The capability to download upgrades exists now; the ability to charge for it doesn't.

It's certainly something we could do relatively easily. But we've always been a little bit tentative in positioning the service as a way to electronically distribute software, because electronic distribution of software is a concept that's been talked about now for ten years, and generally hasn't taken hold.

Part of the reason is that the traditional distributors and retailers of software aren't really keen on the idea of building a mechanism to bypass them. And a lot of companies have been reluctant to use the medium for electronic distribution because it essentially cuts their existing retail partners out of the loop.

So that's why we haven't done it. It's not a technology question, it's really more a business question. We'll see how AMIX does in that area—my guess is that it will require building a lot more critical mass of people who are subscribing to the service before it becomes interesting for most of the publishers to do it that way. Because it's a business issue and not a technology issue, to the extent that it becomes something that people are comfortable using, it would be relatively easy for America Online to provide that as well.

> **"Prodigy has been unfairly attacked because of some of their policies. I think most of what happened is that the whole interactive communications area caught them by surprise."**

One of the interesting dynamics to watch will be what happens as communications becomes an integral part of computing. Certainly for the first ten years of personal computing modems and communications have been positioned as a peripheral part of computing—you go to a computer store and go to the Peripherals section to get your modem, which essentially has defined it as being a nonessential part of the computing experience.

That is definitely changing. Now 100% of the IBM PS/1 computers have modems, about 90% of the Packard-Bell computers have modems, quite a number of the Tandy computers and computers from other vendors have modems. Suddenly that's changing the way software companies think about providing support, and the way they think about providing upgrades.

Because if they could count on the fact that most, if not all, of their customers have a communications capability, that would dramatically shape the way they think about communicating with their customers and the way they think about updating their software programs. For example, it would be more likely that they would follow the path we follow—we tend to add new services and features every week. In a sense we're upgrading our program constantly.

Software companies could do the same thing, so that instead of waiting a year to get some fix or to get some additional enhancement, they could just offer it to people as soon as it's ready. The reason they don't do that now is because there's not enough people using modems among their customers to do that as a way of meeting the needs of the bulk of their customers.

Do you have any sense of what other systems your users use, and what percentage of them only use AOL?

We do have that information. When people first sign on, we ask them some of those kinds of questions.

What we generally find is that about half of our members are using some other service, and it typically is one of the other major national services such as Prodigy or CompuServe. Which sort of supports the point that we've always believed, that different services meet different needs, and that it's unlikely, as this market develops, that people are going to just subscribe to one service.

When I use CompuServe, I sort of feel like I'm walking into the library, which has the benefit of a broad array of information services, really very powerful depth that certainly we don't have and Prodigy doesn't have. But at the same time it's got sort of an intimidating atmosphere, in terms of the interface and pricing and so forth. It's powerful content that's a little hard to get to, and somewhat expensive.

And when I walk into Prodigy, I feel like I've walked into a shopping mall where there's a lot of merchandising activity going on, and some social gatherings on Saturday mornings and so forth.

And when I walk into America Online, I feel more like part of a community, with different areas of the service sharing ideas and interests and so forth.

So they all have a little bit different feel to them, a little different personality. You might find a lot of value in participating in America Online, whether it be the Microsoft Small Business Center or Rocklink or what have you, and then go to CompuServe to get some fairly detailed business information, and perhaps go to Prodigy to do some of the transactional kinds of services that they do well. It's unrealistic, given the potential of the market and the current size of the market, for any one service to do everything and do it effectively.

So do you see the online world getting more diverse as time goes on? Do you see more new services springing up, or the existing ones just getting more broad-based?

I think it'll be both. Certainly as the market develops, there will be a proliferation of specialized services. I think you're starting to see some of that now. At the same time, I think it's the kind of market that critical mass is important—the value of a communication service is typically in direct proportion to the number of people using it—it's better to have a forum where there's thousands of people participating than to have one where there's dozens of people participating.

As a result, I think the big services will get bigger,

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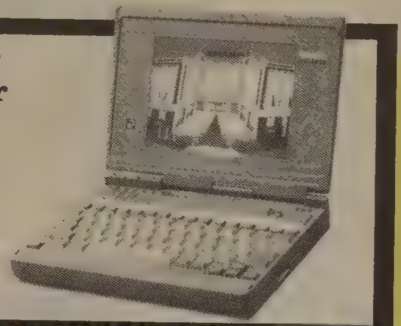

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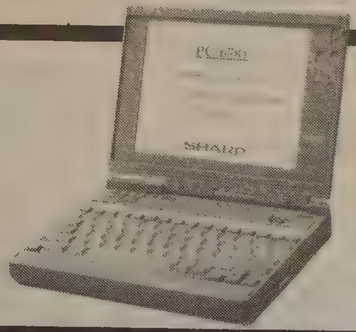

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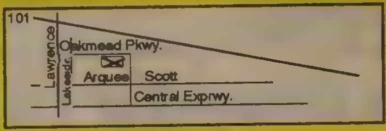
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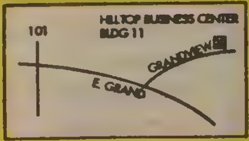
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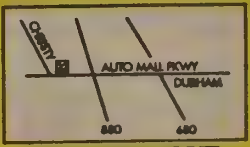
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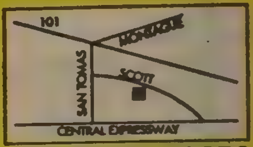
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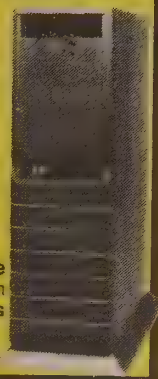

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and it will end up being a market that splits into a relatively small group, probably three major national services. I think that group is already pretty well defined—CompuServe, Prodigy, and America Online. And we'll see the emergence of a variety of highly specialized services, some just dealing in the personal finance area, such as one service called Smart Investor that recently came out. Some just focusing on games, which is what the Sierra network is doing. Some focusing on marketing business information, like AMIX.

So it really will be a market that's characterized by a few major players that have lots of customers, and are platforms that major media companies, for example, can feel comfortable working in tandem with to provide services like we're doing with the *Chicago Tribune*, as well as a proliferation of highly specialized, kind of small-sized providers, meaning very narrow interests.

What about Internet? You now have the easiest-to-use Internet mail in the world.

Well, it's a start. Internet's kind of interesting in that it developed without a grand strategy. It really developed kind of organically to become this network-of-networks that's clearly the largest interconnected network in the world. Millions of people are using it daily.

We just felt the opportunity was to marry the affordability and accessibility of America Online with the power and reach of Internet, and the first step was the email gateway we announced a couple weeks ago. It's already quite popular. We're transmitting thousands of messages each day now between America Online and Internet.

But we think beyond that there's an opportunity—Internet's got a lot of power, but it's also hidden away from most people. You've got to know the secret keys to get into an Internet system, and then you have to figure out how to get around the Internet system. So in many respects it's this resource that is hidden from normal people. We want to figure out a way to bring that to real people all around the country.

A lot of people are talking now about the commercialization of Internet, trying to figure out ways to take the Internet from being reliant on government subsidies to being supported by business traffic. We want to go a step further and figure out how to consumerize Internet, try to make it accessible to the masses. Email, as I said, is the first step; we're trying to figure out other things we can do to link America Online and Internet so you kind of get the best of both worlds.

That may include providing access through America Online's interface to some of the Internet newsgroup kinds of services. It may involve allowing people through Internet to access America Online. There's a lot of different ways that we're looking at, but it just seems like a powerful way for us to take advantage of what we do well, which is accessibility and affordability, and what Internet does well, which is have millions of people sharing ideas. There's a lot of potential for services like ours to tap into the power of Internet.

"We've always believed that different services meet different needs, and that it's unlikely, as this market develops, that people are going to just subscribe to one service."

Our design philosophy has always been "ease of everything is everything". It kind of goes back to my original experience ten years ago, which I still remember vividly to this day, of sitting in a room in Kansas trying to figure out how to connect to this electronic world and how painful it was. Everything we do, and everybody within the company is constantly figuring out, is how to make this accessible to the masses.

And as a result, we'll take the time to do it right. We could have offered an Internet email gateway a lot sooner, but we wanted to design it in a way that worked seamlessly, like any other America Online mail system. So if you're sending mail to another America Online customer, it works the same way as if you're sending mail to somebody on CompuServe or somebody using an Internet system in Sweden. It works exactly the same way.

That takes longer, but it's important. We're going to continue to push for that ease of everything. That may mean some functionality that we'd like to provide to our customers won't be available as quickly, but when it does become available, it'll be easy to use.

Do you envision a time when AOL might have more global access than it currently does, like getting into TWICS and NiftyServe and all those systems?

Oh, sure. We do have the capability to provide international access to America Online through the existing telecommunications partners we've got, such as Sprint, that have nodes around the world.

We're also considering establishing some partnerships with companies in other countries, so we actually create localized versions of America Online that are customized for those particular markets.

Right now, we think there is an opportunity on the international side, but our focus is really still on the US side. We think there is tremendous opportunity to grow our company and our customer base just by focusing on the markets we're currently serving and serving them more effectively.

As a public company, we talk about how many members we have. At the end of March, we said we had 170,000 members. There were one hundred million households in the United States, and depending on whose numbers you believe, about ten million of them now have PCs and modems and are able to access these services. And all the new PCs have modems built in.

So there's just a huge opportunity to grow within the market we've already defined, as opposed to having to chase some new markets. So that's not something we're likely to do any time soon. ■

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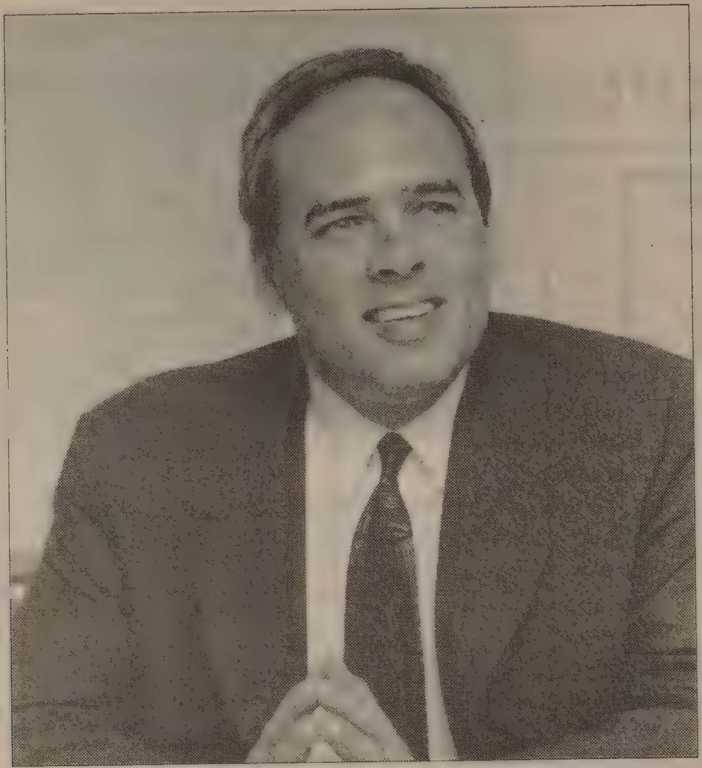

Dennis Sisco

Continued from page 120

describe shapes or process pictures. We have brought into this environment the ability to process forms and shapes. Further increases in computer power enable us to predict the future, to predict behaviors, to perform simulations, and to take virtual walks through designs. This will give us the power to put behavioral prediction in the hands of our customers. And increasingly inexpensive forms of computer power will enable us to evoke sophisticated actions and machines such as robots that will be able to see and have tactile feel associated with them.

Computer power is going to be an enabling technology. It is going to lie beneath the processing of those kinds of pieces of information that will make the virtual revolution possible. The virtual revolution is also going to be a child of inventions happening in unrelated fields, many of which we never conceived of as having that ultimate result. If we look at desktop publishing, it occurred because we invented integrated circuits, which enabled us to build microprocessors. We invented lasers, which ultimately led to semiconductor lasers. We developed xerography, which we could then combine with lasers to make laser xerography. We developed low-cost mass storage and layers and layers of software that resulted in desktop publishing. I am sure no one of those technological advances in and of itself was ever conceived of at the time as being fundamental to desktop publishing, which none of us ever understood would exist.

System integration is going to be one of the important technologies of the virtual corporation. Networks will tie together customers, suppliers, and producers. If we look inside the great retailers, people like Wal-Mart, we will find that these networks will link the cash registers all the way back through the supply chain. When somebody buys a garment, the garment manufacturer will not only be informed, but the person who makes the fabric and the person who makes the fibers that go into that fabric will know to ramp up their production in response to end-user demand.

Virtual products are going to be instantaneously engineered with powerful computer systems that use both CAD and CAE technology. We will be able to walk through our designs using virtual reality. We are going to be able to predict their performance in the future using simulation tools. They will share and call on massive databases, which will enable us to reuse engineering. But on top of that, the virtual engineer is going to employ commonsense organizational techniques—things like concurrent engineering, which brings marketing service, the customer, and the suppliers together to do the design. An example of this is what goes on in the Japanese automobile industry. They have cut the time required to manufacture stamping dies from two years to one with the simple process of giving the die steel manufacturer the information about the size of the blocks of die steel they want very early in the design process.

Simple organizational innovation will be as important to the virtual engineering process as all the computer power we can bring to bear. Virtual manufacturing in some cases will employ CIM (computer-integrated manufacturing), flexible manufacturing systems, and robots. But at its very heart is lean production technology. Lean production technology is important because it employs half the human effort, half the floor space, half the investment and tools, almost no inventory, and virtually no production time. It was developed by Taiichi Ohno in the 1950s when he worked with the Toyota Manufacturing Company. It did not depend on computers. I hate to say that. Ohno started out wanting to eliminate all waste in the manufacturing area. To this end he developed just-in-time production systems, which were highly dependent on total quality control and on *kaizen*, the Japanese system of continuous improvement.

I think that one of the most interesting things that I saw at this conference was Professor Loveman being attacked for explaining the fact that the computer had not added to productivity in the United States. I would like to tell you a little story, because I think it signifies the problem that we are fighting.

I was told by a vice president of Ford one day that Ford had five hundred people in an accounts payable function and they wanted to improve the productivity of this group by an order of magnitude. Ford worked very hard and got that function down to fifty people. They then went over and looked at a similar function at Mazda, which employed five people.

I'd like to drop back a moment and tell you about an experience that I had when I ran the manufacturing area at Intel. Every month I would sign a check to a floppy disk vendor, and it was accompanied by a stack of paper that was six inches thick. I used to sit down with the accounting people and say, "Why do I get all this paper?" And they would say, "Well, look, we ordered a hundred disks this day and we got ninety-five shipped and then we returned twenty and then they shipped us back eighteen and so we have this paper trail associated with this transaction." At that time about six inches of paper was required to pay a $250,000 bill. It would have been impossible for the people in the accounting department to produce all that paperwork without the aid of computers. So the computer apparently increased individual productivity tremendously.

Now I would like to tell you the story about how Mazda got away with the five people in accounting. They had very reliable suppliers and Mazda approached its suppliers and said, "Look, we have no inventory in process. We know that your quality is perfect. Let's use tires as an example. You know none of that inventory sits around inside our shop. It moves out the door in seventy-two hours. So we will count the number of automobiles produced each month, multiply that number by five, and send you a check."

When we look at these things, and we say that the computer has not affected productivity in the United States, it isn't that the computer hasn't enabled every individual in this room to do much more. The fact is that we are frequently automating methods that were tied very much to the way people did things in the late nineteenth century.

The virtual corporation is going to be organized very differently from the one that we know today. It's going to relate to suppliers differently. It's going to have a flattened management hierarchy. (You've heard all of these kinds of things before.) It's going to be highly dependent on a computer-literate and skilled workforce. This is a very, very different management structure than we see today.

The management structure that is involved in corporations today is one of hierarchies. Those hierarchies were developed during the growth of the railroads in the United States in the late 1800s. They were the information network that enabled the managers at the top to find out what was going on in the various locations around the country. The middle management structure was merely a LAN. On top of that, we ended up with a very directed type of work structure that was an outgrowth of Frederick Winslow Taylor's sci-

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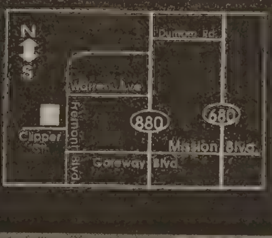

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entific management, which found one best way and encouraged management to direct every single activity that a worker was involved in.

That type of activity is no longer going to happen in the virtual corporation. Virtual corporations are going to exist with employees who are doing a tremendous amount of self-management and with an information structure that replaces middle management, so that messages can fly back and forth relatively quickly.

The virtual corporation is going to employ its customers as coproducers in everything that they build. You're going to see things like Otis Elevator putting computer systems in the hands of architects, who will coproduce and design the elevators that Otis will be delivering. Corporations are going to have virtual travel agents on every executive's desk. Inside those virtual travel agencies computers are going to be virtual negotiators that will search for the lowest fare through the airline reservation systems, as computer programs now do.

This is all going to require a level of skill and integration with suppliers that is much higher than we know today. And it's going to bind the customer to a relatively limited number of suppliers, because that's the only way that he or she can have the skills that are required to do the job. But the virtual corporation is going to find itself increasingly customer managed. In order for customers to get what they want, they are going to have to invest very, very heavily in a few corporations. You're going to see customers narrowing their supplier base. You're going to see companies like Xerox going from thousands of suppliers down to a few hundred, so the customer can be involved in this management process and get precisely what he or she wants.

As I mentioned a little bit earlier, middle management is going to vanish as production workers, empowered by computers, find that they have the ability to make the decision to respond to customers.

There is an urgency to all of this. To prosper, our country must produce value-added products. We possess all of the important advantages that are required to lead in the virtual revolution. We lead in computers, we lead in software, we lead in many important areas of technology. We have superior telecommunications and transportation systems. We possess the world's best higher-education system. And we are in the middle of the world's largest homogeneous economy and market.

America also faces some crucial challenges. We are weighed down by an erosion of intellectual capital, a government lacking in a coherent vision of the future, and by manufacturing companies struggling to catch up in quality and lean production methodology. But if we fail to win the virtual battle, there is no doubt in my mind that we are in for a long and painful economic decline.

The next chance to catch up may occur when there is another change in production methodology, but that may not happen for fifty or a hundred years, or possibly ever. Our industry holds the key to the virtual revolution. It will provide the networks. It will integrate the efforts of companies and customers and suppliers. It will provide the tools that will virtualize engineering, products, and services. And if we do our job right, there is no doubt that we will perform an extremely valuable service for our country and ensure the prosperity of the computer industry well into the twenty-first century. This, to me, is an exceedingly important responsibility and represents the greatest challenge that the computer industry has ever faced. ■

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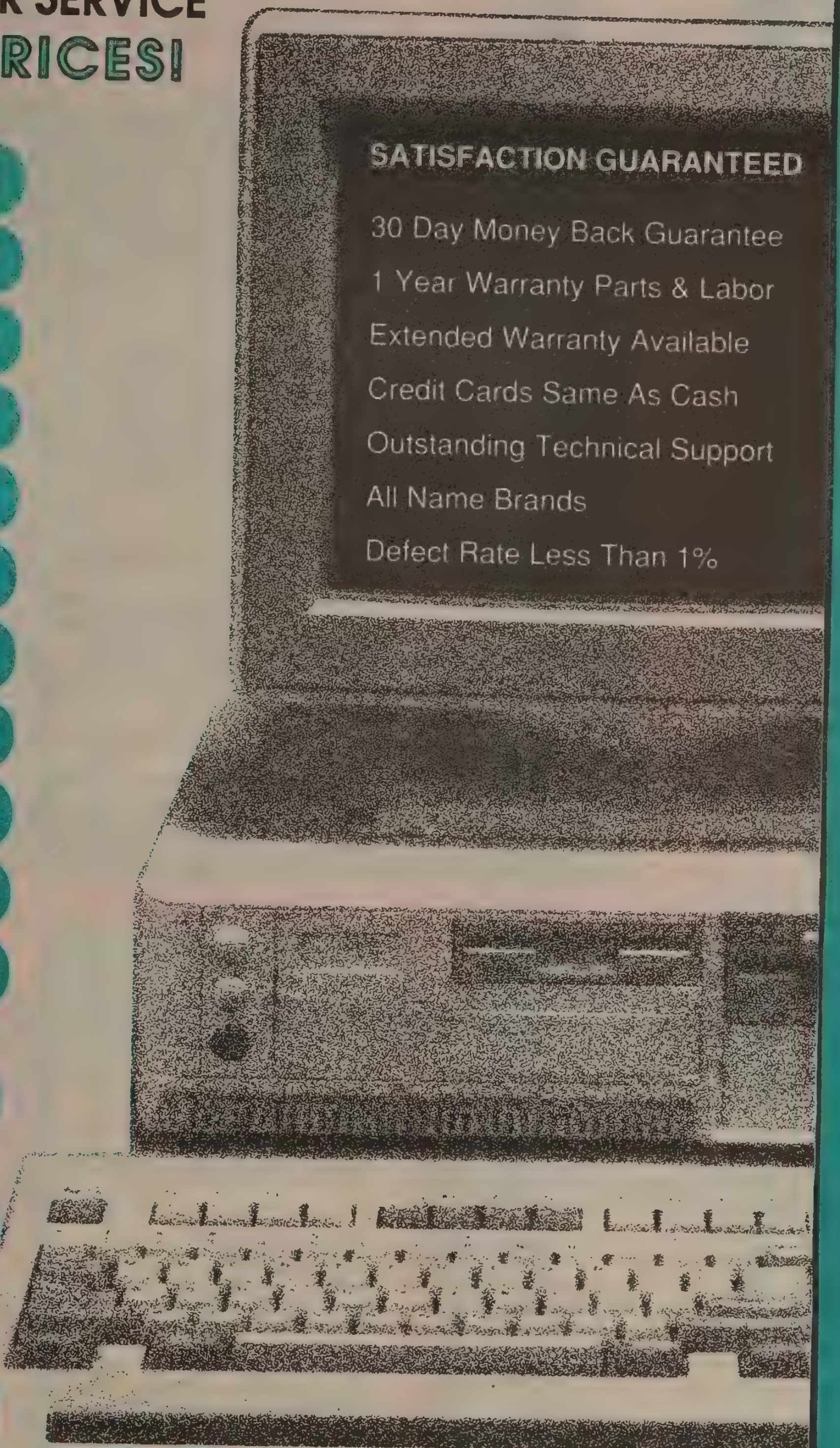

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486DX-33C EISA	648	818	1,068	1,198	1,238	1,298	1,352	1,508	1,568	1,658
486DX-50C ISA	628	798	1,048	1,178	1,218	1,278	1,332	1,488	1,548	1,638
486DX2-50C ISA	558	718	968	1,098	1,138	1,188	1,138	1,408	1,468	1,558
486DX-33C ISA	416	584	834	964	1,004	1,054	1,104	1,274	1,334	1,424
486SX-25C ISA	194	356	606	736	776	836	890	1,046	1,106	1,196
486SX-20C ISA	174	344	594	724	764	824	878	1,034	1,094	1,184
386DX-40/64C	168	328	578	708	748	796	846	1,018	1,078	1,168
386DX-33/64C	162	318	568	698	738	786	836	1,008	1,068	1,158
386DX-25	142	302	552	682	722	766	816	992	1,052	1,142
386SX-33	118	280	530	660	700	746	796	970	1,030	1,120
386SX-25	100	260	510	640	680	726	776	950	1,010	1,100
386SX-16	95	256	506	636	676	722	772	946	1,006	1,096
286-20	70	228	478	608	648	708	762	938	998	1,088
286-16	62	220	470	600	640	700	754	930	990	1,080
286-12	49	210	460	590	630	690	744	920	980	1,070

BASIC SYSTEM CONFIGURATION:

Motherboard & CPU, 1MB (512KB for 286 systems) memory installed, 1:1 2HD/2FD controller, 1.2MB or 1.44MB Floppy Drive, Internal Clock/Calendar, Mathematical Coprocessor Socket, Enhanced Case with Power Supply, and 101-Key Enhanced Keyboard

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VGA-512K (1024•768, 16-Bit)	37
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Diamond Speed Star Plus w/ 1MB	126
Diamond Speed Star w/ Hi-Color	138
Diamond Stealth VRAM	208
Diamond Hi Color & SONY 1304S	684
Diamond Hi Color & Nanao 9070U	940
Orchid Fahrenheit & Nanao 9080i	1,142
Orchid IIs w/ 1MB (w/SYS)	126
Orchid IIs/Hi-Color (w/SYS)	136
Orchid Fahrenheit (w/SYS)	208
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ATI Graphic Ultra w/ Mouse	348
Nanao 9080i (16", 1280•1024, 0.28)	922
Nanao F550i (17", 1280•1024, 0.28)	1,030
NEC 3FGX (15", 1024•768, 0.28)	638
NEC 4FG (15", 1024•768, 0.28)	738
MAG 15H (15", 1280•1024, 0.28)	612
Sony CPD 1304S	548
Sony CPD 1604S	1,028
IDEK MF-5217 (17")	980
IDEK MF-5317 (17")	1,098
HITACHI CM-2085M+ (20")	1,458
HITACHI CM-2187M (21")	2,288
TOSHIBA P17CS01 (17")	1,234
TOSHIBA P21CM00 (21")	2,034
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Super VGA (1024•768) Monitor 0.28	258
Super VGA Non-Interlaced Monitor 0.28	288
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Viewsonic 6E	334
Viewsonic 7	1,022
Viewsonic 8	1,522

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Bustek SCSI (EISA)	308
Ultrastor SCSI 24F (EISA)	448
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Panasonic KX-P1180	154
Panasonic KX-P1123	200
Panasonic KX-P1124i	280
Panasonic KX-P1624	344

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Maxiswitch / Keytronics	30 / 36
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CYRIX 387DX-40 / 33	124 / 96
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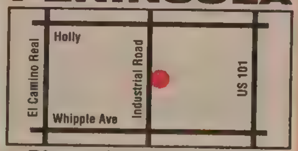

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- Teac 1.2 MB 5.25" Floppy Drive
- 2 Serial, 1 Parallel, 1 Game port, I/O Card
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Viewsonic 8	20" 1280x1024	1695
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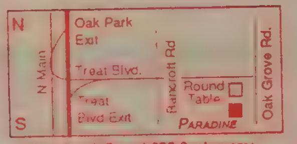

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Continued from page 124

Then we're going to spend another $10–20 million developing the *right* product'—I'd say, 'It's going to take you two years to develop the first product, a year to learn something from it, and two years to develop the next product. So that's five years. Then you're going to need a lot more money. So that probably isn't the right kind of venture investment for me to make.'

"On the other hand, if there were three software guys in a garage who came to me and said, 'Look, we've got this idea; it's going to be fundamentally very important. We'd like $200,000 a year to work on it for a couple of years. We're going to track the market. Then when the trend really becomes obvious we're going to pour on the coal and do something'—that is a more reasonable type of investment for a venture company to make."

In the times of chaos and opportunity, Davidow says, there are sure to be many casualties; for every Sun and Compaq, there will be dozens of Seeqs and Gavilans and Cromemcos.

William Davidow: "One of the good things about this society, one of the reasons it's so dynamic, is that it's driven to do things before it should do them."

"It's part of this creative process. It is absolutely avoidable. [But] is the society capable of avoiding it? The answer is no. One of the good things about this society, one of the reasons it's so dynamic, is that it's driven to do things before it *should* do them.

"We were the area that got into the microwave business early, the electronic instrument business early, defense electronics early; and then we got into minicomputers and disk drives and semiconductors and software and bioengineering and things like that. Look at the industrial diversity that was created in this area. The personal computer business, the workstation business.

"One of the sad things is that some of these things have gone away, but there was this tremendous creative process that kept introducing new things into our lives. That wouldn't have happened without the Cromemcos." (Mohr, Davidow Ventures, 415/854-7236) ■

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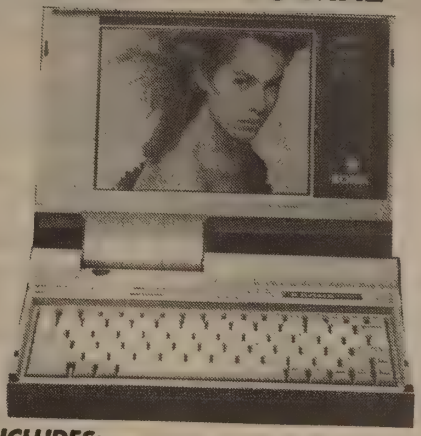

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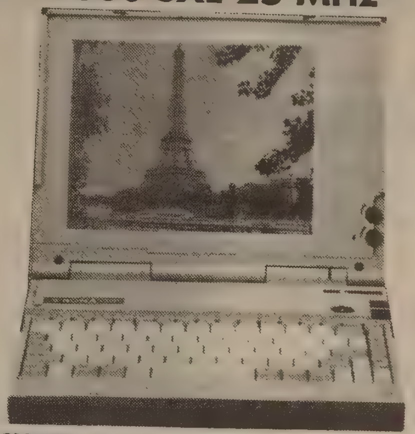

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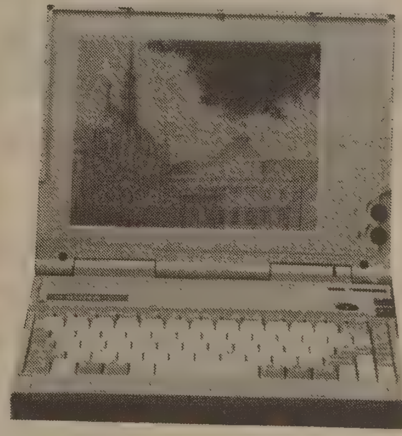
3900 SL-25 MHz



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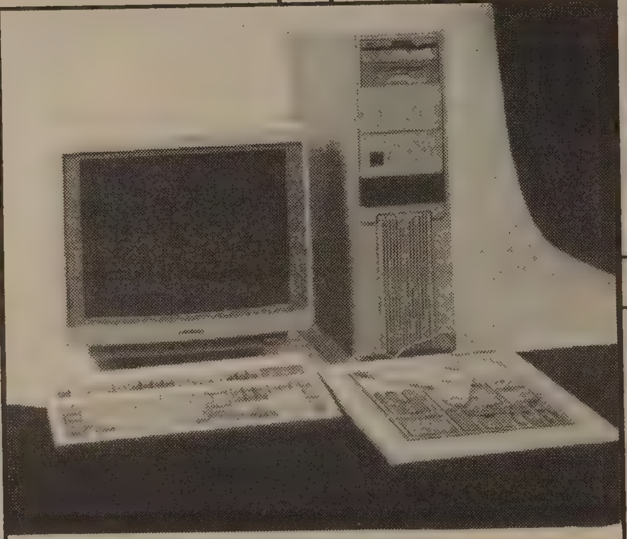

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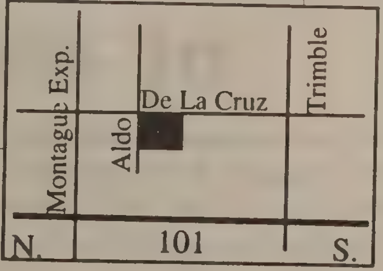

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Continued from page 126

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download from there, then copy it all back to the Mac. (Since the AMIX software is constantly updating files on your local disk, several files in the directory are likely to be altered in each session.)

SoftAT also offers the very handy option of letting you create "network drives," areas on your Mac desktop where you can place both Mac and PC files and access them from both environments.

SoftAT's network drive capability is a godsend for this purpose. Not only does it enable me to get around the fact that my AMIX directory has long since outgrown SoftAT's 5MB disk partition, it lets me quickly select and copy the relevant files to floppies from the desktop.

This works quite well, except when the files in question start getting larger than the 1.4MB capacity of the floppies, a problem I encountered after a large download grew a particular AMIX file to 3MB. One option at that point would have been cabling the two machines together with MacLink Plus, but it wasn't around the house at the time. Finally my friend (a UNIX person by inclination) remembered the DOS backup/restore command, which lets you back up files to floppies, keeps track of how it splits them, and keeps prompting you to insert more diskettes until the backup's done. Then you restore from floppies to the destination disk, in this case the Mac's Network Drive.

SoftAT supports this, and this too worked fine until we tried to reverse the process, backing up from the SoftAT side to floppies, then restoring to the 386. It would probably have worked quite well again, too, were it not for one of those instances of DOS Brain Death that make us cling so desperately to our Macs.

By sheer ill luck, the 386 was running DOS 3.2. SoftAT is DOS 3.3. DOS 3.2 does not recognize 3.3-generated backup files as being backup files, and refuses to deal with them. Check your version numbers and avoid this pitfall.

ADVENTURES OFF THE BEATEN TRACK

As noted earlier, if you don't stray from the path of mainstream applications, your Macintosh word processor, spreadsheet, etc., will probably open up files from its PC counterpart almost seamlessly, especially if you've got Macintosh PC Exchange or AccessPC enabling it to see files on a PC floppy. But if you

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Continued from page 222

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Upcoming Events:

August 27	Advanced Software, InTouch and DocuComp II; Equilibrium, DeBabelizer (graphics image-processor).
August 31	BMUG West at Exploratorium museum in San Francisco. Advanced Software, InTouch and DocuComp II; ExperVision, Expervision (OCR).
September 3	Appoint, Thumbelina, and MousePen (pointing devices); Fearless Color , Ready-Seps (DTP photos).
September 10	Syquest, New Removable drives; Quark, Dispatch Publishing System.
September 17	Computer Care, Color for PowerBooks; Panamax Surge protectors.
September 21	BMUG South at United Way Office in San Jose. Advanced Software, InTouch (PIM) and DocuComp II.
September	BMUG West at Exploratorium museum in San Francisco. To Be Announced.

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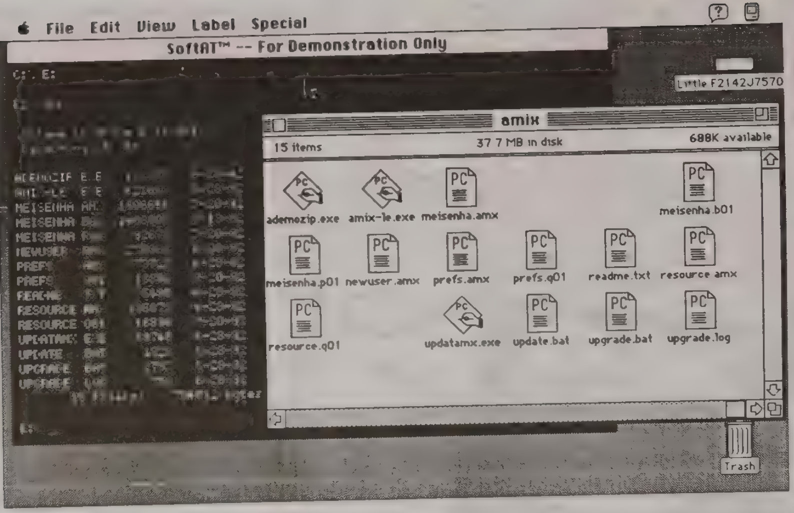

With SoftAt, double-clicking an icon on the desktop plunges you into the world of DOS.

do stray from that path, you may find yourself scrambling in some areas relatively uncharted by Mac users.

Consider the tale of *The Hacker's Diet.*

The Hacker's Diet is a book that Autodesk founder John Walker may yet get around to publishing in print one of these days. It is both a relentlessly honest technoid treatment of weight loss and a great read even if you're not really interested in diet books, and after hearing about it for several years I was delighted when it arrived on AMIX.

Being nothing if not candid, Walker spends several paragraphs in the introduction explaining the hidden hassles of downloading the file. First of all, the main body of the book itself, with text originating in TeX and graphics in everything from AutoCAD to CorelDRAW!, is 3.5MB of PostScript code (not to be confused with anything you can read or manipulate on the screen, unless you've got a NeXT). Since 3.5MB downloads are not too practical, the file is compressed using a utility called PKZIP, roughly the DOS counterpart to StuffIt. Also included is about a meg's worth of Excel spreadsheets to be used in conjunction with the book, also compressed with PKZIP.

Uncompressing the DOS files onto the Mac disk turned out to be surprisingly easy. A free utility called UnZip, available on most online services and Mac BBSes, did the job flawlessly. And despite the fact that the spreadsheets originated in Excel for Windows 2.1 and were currently in Windows Excel 3.0 format, they opened and worked fine (except for a dialog box looking for an obsolete macro) in Excel 4.0 for Mac.

The PostScript files were a slightly different matter. Even the DTP wizards I consulted knew of no way I could import it into any Mac applications (MS Word has some capabilities along these lines but would balk at a 3.5MB file). It is quite common in the PC and UNIX universes to distribute files in this way, but Mac users find the practice a bit unwieldy because, essentially, all you can do with this huge file is dump it to the printer.

Which was ultimately simple enough, complicated only by the fact that my old version of SendPS (a utility that sends PostScript code to a laser printer) wouldn't work with System 7. Putting the file on a Syquest and migrating to one of the Macs that's still running 6.0.7 solved the problem, and the trusty LaserWriter IINTX printed out the nearly 300 pages at a surprisingly zippy pace. (Subsequently, I've obtained System 7 tools that also work well.)

So for the moment, I still can't read this book on screen or manipulate its content (something book authors probably find highly desirable anyway). But I can read it on paper and its ancillary spreadsheet files work just fine in Windows or Mac.

It's not perfect yet. But we're getting there. We've come a long way from MacChuck, but we're still a long way from seamless interoperability. ■

PRODUCT SPOTLIGHT

Continued from page 208

has fallen in love with it immediately, even the hard-core Tetris junkies. (Inline Design, Inc., 308 Main St., Lakeville, CT 06039-1204. 203/435-4995)

GREAT BATTLES OF THE AMERICAN CIVIL WAR, VOL. II

Published By: Strategic Studies Group
For Macintosh: 1 MB RAM, 2MB for color, System 7 friendly
List Price: $34.95

The first volume of SSG's Great Battles of the American Civil War included First and Second Bull Run, Shiloh, Fredericksburg, Antietam, and Chancellorsville. Volume 2 includes Gettysburg (separate scenarios for the first and second day), Gaines' Mill, Chickamauga, Chattanooga, and Stones River. My apologies to unreconstructed Rebels for calling battles by their Yankee names.

The game system strikes a shrewd balance between the familiar conventions of a board wargame and the capabilities of a computer game. You take the role of the army commander and you have to work through a chain of command to get your units to move and fight. Corps commanders get general orders to defend or move against a particular objective. Units within the command radius of the commander can get specific orders to assault, withdraw, skirmish, regroup, etc. The options available to a unit change, depending on whether or not it is "in contact" with the enemy. You can turn on a "Radio" option that gives your commander an unlimited command radius. This feels more like a conventional board wargame, but trashes the historical accuracy of the command/control simulation. You can also turn on an "exposed" option that gives you a God's eye view of the battlefield—the default is that you can only "see" enemy units in contact with your units.

Graphics: 7
Sound: 7
User Interface: 8
Overall Value: 8

Units have a manpower strength and a "cohesion" level. As a unit suffers casualties it also loses cohesion. Units can shatter, retreat, or be destroyed as a result of combat. Units are represented as square icons on an invisible hex grid. As a unit loses cohesion the icon crumbles and gets shot with holes. That's a nice touch you don't see in board games (until the counters get really, really worn down).

Units can be Enfiladed (attacked from a flank, which was devastating for the rigid, linear formations of this era), but the square unit icons make it impossible to judge which way the front, flanks and rear happen to be oriented, and there is no specific way to change facing. The system assumes that the nameless colonels and majors will face their regiments toward the most immediate threat.

Victory conditions are based on a point system that includes losses, leader casualties, and control of objectives. The maps are excellent in 16-color graphics. I think they would be disappointing on a monochrome screen, but that is a personal judgment.

The program can play either side of a scenario, and you can play against a human opponent, if there are still humans who will talk to you.

I really like SSG's Macintosh games. I would highly recommend this series for Civil War buffs. They show more respect for the Mac user interface than most game publishers. I haven't used the scenario design tools included in the program—it seems as though it would take a lot of time to create a map and set of units from scratch. Documentation of this feature is only so-so. You really need the back issues of *Run 5*, SSG's house magazine, to get the most out of the system. (Strategic Studies Group, Inc., 8348 Monticello Dr., Pensacola, FL 32514. 904/494-9373) ■

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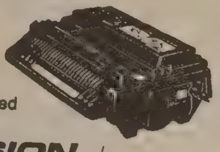

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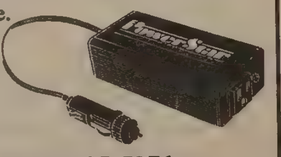

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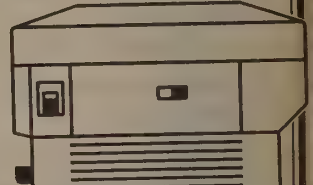

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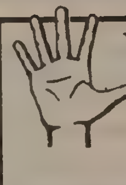

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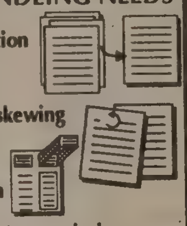

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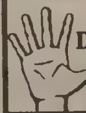

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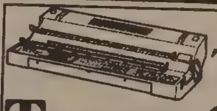

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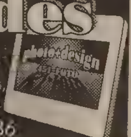

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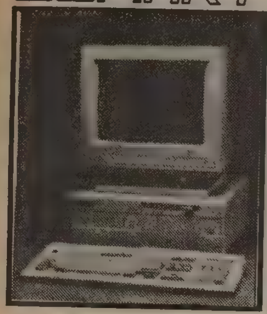

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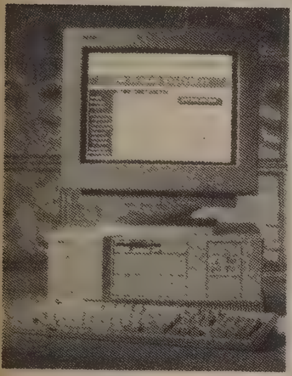

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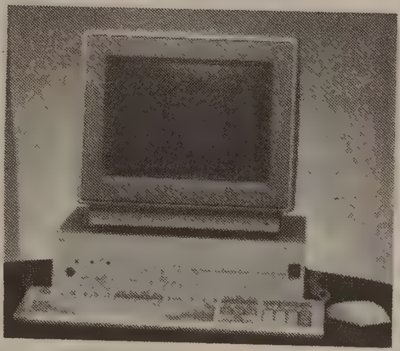

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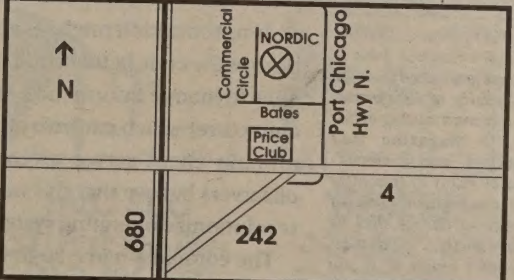

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Probably the most amazing product I've ever seen was demonstrated for me recently at Megaflak Software in Redmond, Washington. More than an operating system—there are aspects of this new package that will blow anything from Microsoft or IBM out of the water.

Called MAM/OS/30 (Megaflak architecture multithread operating system) it's a multiuser, multitasking, single or networked operating system utilizing the MAM/BO-OS-bus. With MAM/BO you can add company supplied or third-party modules which will allow features such as distributed operating system capability, multiprocessor capability, and object-oriented shells and virtual shells. The company says it will ship a multiprocessor MAM/BO add-in the first quarter of 1993 for the MIPS processors. The OS currently runs under all Intel chips. Furthermore, the company is about to release what it terms a virtual object-oriented virtual shell for users needing definable programming environments.

The demonstration clearly showed the superiority over Windows NT and IBM OS/2. More interesting is the fact that using the patented Megaflak emulation technology the MAM/OS/30 can actually run DOS programs, OS/2 programs, Windows programs, and anything currently running under UNIX. Furthermore, because of the turbo technology used in the kernel, all applications executed under MAM/OS/30 run at substantially higher speeds than in their native environment. This includes assembly-coded DOS programs. The company's VCOM (virtual code optimization module) actually pre-optimizes the code before emulation, using the DIIA (dynamic information interchange architecture) which controls all data I/O in an on-chip client-server arrangement. Most observers believe that this new concept will revolutionize operating system design.

The company had a large video projector showing execution times for OS/2, Windows NT, and MAM/OS/30, and it was clear that programs such as Lotus, Quattro Pro, PageMaker, and everything else ran substantially faster under MAM/OS/30 on the same machine. As a joke, the company ran a UNIX version and an OS/2 version of Lotus 1-2-3, and the program ran fast and without glitches.

The most interesting aspect of MAM/OS/30 is the plug-in module concept. The operating system is designed on the model of a power strip. You plug software "appliances" conforming to the MAMOSA (Megaflak architecture module operating system appliance). You can plug in a network. You can plug in a mainframe. The MAMOSA specifications are available to all developers who want to write to the MAMOSA specification.

Network engineers will appreciate the special MONIK (Megaflak-oriented network integration kit) package that will expedite connectivity between Novell, LANtastic, and other PC networks as well as SNA and X.25 connections. Mail is handled similarly with the MMGOOD (Megaflak mail gathering oriented operating drivers) option which makes X.400 and X.500 connectivity part of the system.

The press conference after the product announcement revealed more interesting facts not contained in the press kit. The company, first of all, believes that it is ahead of schedule for delivery of the pre-beta beta of the alpha release. That should be shipping to developers along with twelve CD-ROMs of documentation. The pre-beta should follow shortly and shrink-wrap will be by December. Most of the observers at the conference think that shrink-wrap will not be ready until next year. When confronted by that possibility, the company said it was on track for a December release. It admitted that support for RISC processors may be delayed until early 1993.

The company also plans to have a version available for the DEC Alpha minicomputers by mid-1993. It was confirmed that the DEC Alpha machines would be able to run all current DOS and Windows applications under MAM/OS/30 in a virtual window on a virtual desktop. The company has even developed a virtual virtual windowing system that, while not shown, was discussed in the press conference. Not wanting to go into details, the CEO, Jim Q. Gatwick III, Esq., said that the company is already "50% done" with its design for a VVMWS (virtual virtual mock windowing system) to be introduced with the object-oriented dynamic kernel (DK) version of MAM/OS/30, which will be introduced in 1994. When released it will be expensive and only for specific applications. It's called MAM-DK and might possibly be the greatest, most versatile, high-performance operating system ever devised, according to the company.

In other announcements the company said it fixed the mouse driver for MAM-WORKS and increased the MAM-WORKS spreadsheet so it could now go beyond the 24-cell limitation. The company said it was still working on the form feed bug in its WORD POKE for Windows word processing software. After each page is printed, a form feed produces one blank page. "Despite this annoying bug, we are still selling these packages like hotcakes," said Gatwick.

A group of analysts was then brought to the podium so we could question them. They were all familiar with the product and answered questions after making a comment or two.

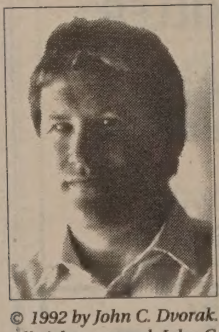
Blair Stevenson of Stevenson, Stevenson, Stevenson, and Hacker Investment Bankers said, "This is the finest operating system I've ever seen. It's now the leader."

"This is the operating system that others will have to be compared to. Its multithreaded design makes it a win-win for everyone," said Claire Parcokcorc, President of Parcokcorc-India Securities.

"Megaflak has upped the ante with this announcement," said Harry Maximillian of Maximillian & Co.

"It's the expandability that makes MAM/OS/30 the leader and the winner that it so obviously is," said Jeremy Kernigan of Drahwolb Research.

I'm looking forward to the next generation for sure. The MAM-DK product sounds really exciting. Forget Windows NT and OS/2 and Windows and all the rest. Besides that, these guys had pretty slides and a good lunch. ■



© 1992 by John C. Dvorak. All rights reserved. John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine and MacUser, and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.

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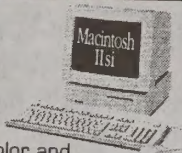
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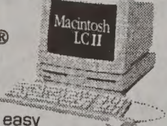
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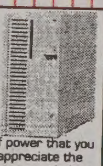

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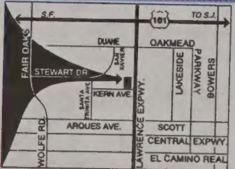
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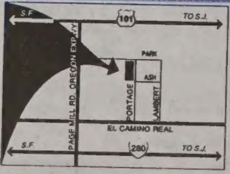
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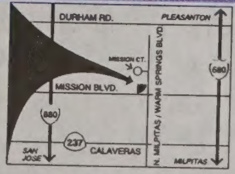
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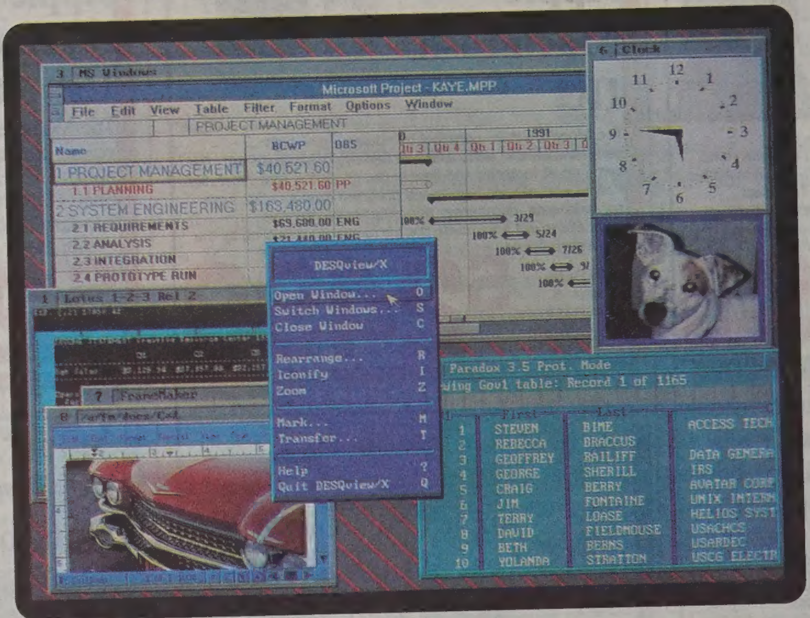

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